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THE
ZOOLOGICAL RECORD

VOLUME THE THIRTY-EIGHTH.

BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1901.

BY J. A. THOMSON, R. LYDEKKER, R. BOWDLER SHARPE, G. A. BOULENGER,
ALICE L. EMBLETON, E. R. SYKES, E. A. SMITH, S. PACE, ALBERT BROWN,
D. SHARP, F. A. BATHER, AND E. A. MINCHIN.

EDITED (FOR THE ZOOLOGICAL SOCIETY OF LONDON) BY

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Explore solum: sic fit via certior ultra.

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The Editor thanks those Societies and individuals who have forwarded works and papers for the purposes of the Record, and suggests that Societies publishing Zoological Papers would much facilitate the work of the Recorders by forwarding a separate copy of each Zoological Memoir they publish to the Editor for the use of the Recorder. This is preferable to sending the entire volume, because each paper can go directly to the Recorder it concerns.

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PREFACE.

THE thirty-eighth Volume of the Zoological Record has involved a very great amount of labour. That it appears a little later than usual is not due to any delay on the part of the Recorders, but rather to the time that the Editor found it necessary to devote to the recently published Index-Volume.

The work of the Recorders becomes more extensive year by year, and the Editor feels that he owes them very sincere thanks for carrying out their task so well as they do.

Professor Herdman having been absent on a Government Mission to Ceylon, Miss Embleton has kindly furnished the Record of Tunicata for this Volume.

The Editor has the pleasure of thanking the Librarians of the Royal, of the Linnean, and of the Zoological Societies; as well as those in charge at the British Museum (Natural History), at the Radcliffe Library, Oxford, and at the Science Library, Victoria and Albert Museum, who have supplied him with information as to the works taken at their Libraries. Prof. Minchin has kindly assisted in keeping the list up to date.

The list of periodicals is again augmented. The Librarian of the Science Library, Victoria and Albert Museum, has revised it with regard to the periodicals taken at that Institution.

The first list of periodicals in the Zoological Record was inserted by Professor Newton in 1871. It comprised the names



of 201 journals and occupied less than six pages. The number of periodicals in the list of this year's Volume is upwards of 1000, and the list extends to about 52 pages. This gives some idea of the extent to which the work to be done has increased in 30 years. The number of new generic names registered in 1870 was a little more than 700. Last year it was 2102.

Critics will certainly find it easy to discover deficiencies in the Volume, but we may doubt whether they will realise the extent of the work involved in it.

In another year or so we shall be able to judge whether the Zoological Volume of the International Catalogue of Scientific Literature will sufficiently meet the requirements of Zoologists, and will justify the Zoological Society in dispensing with the services of its staff of Recorders.

As we may be permitted to doubt whether this can be the case for some years to come, the Council of the Zoological Society has decided to continue this Record for the present; and to increase its usefulness by issuing a certain number of separate copies of each of its Divisions. These will be supplied on the terms scheduled in the advertisement that accompanies this Volume.

D. SHARP.

CAMBRIDGE,
Oct. 1902.

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CORRIGENDA.

ALPHABETICAL INDEX OF NEW NAMES OF GENERA AND SUBGENERA.
By the EDITOR.

CORRIGENDA.

MAMMALIA, p. 8, Title (106) the author's name is CHIGI.

„ p. 37, line 11 from bottom, for “*Carlozittelia*” read *Carolo-zittelia*.

„ p. 38, line 30 for “*Caraloameghinia*” read *Caroloameghinia*.

INSECTA, p. 112, line 4 from bottom, for “*Palacomymar*” read *Palæomymar*.

„ The following new names proposed in STAUDINGER & REBEL's (1325) Catalogue of Palearctic *Lepidoptera* are omitted, viz :

Dasygorgia grumi, Centr. Asia, STAUDINGER, pt. I, p. 115, t. c., n. sp.

Deuterogonia, REBEL, pt. II, p. 158, n. n. for *Gonia* Hein.

Deuterotinea, REBEL, pt. II, p. 240, n. g. *Tineidæ*.

Epineuronia, REBEL, pt. I, p. 155, n. n. for *Neuronia* Hübn.

Hyptioxesta, REBEL, pt. I, p. 231, n. g. *Noctuidæ*, for *penthima* Ersch.

Kennelia, REBEL, pt. II, p. 263, n. n. for *Anomalopteryx* Kenn.

Lycophorus, STAUDINGER, pt. I, p. 154, n. n. for *Comophorus* Alph.

Lydia, REBEL, pt. II, p. 18, *Pyralidæ*, n. g. for *liturosella* Ersch.

Troctoptera ussuriensis, REBEL, East Siberia, pt. I, p. 231, t. c., n. sp.

N.B. In the Index-Volume (1880—1900) there is a misprint, Preface, p. vii, line 10 ; where 1150 is printed instead of 1550.

ALPHABETICAL LIST
OF THE
ABBREVIATIONS
USED IN THE
ZOOLOGICAL RECORD, Vol. XXXVIII, 1901,
FOR THE
TITLES OF THE JOURNALS, TRANSACTIONS, ETC.
THAT CONTAIN ZOOLOGICAL PAPERS;
WITH INDICATIONS OF SOME OF THE PRINCIPAL
LIBRARIES
IN WHICH THE BOOKS ARE CURRENT.

THE primary object of this list is to enable those using the Record to find with ease the full title of a Journal they see quoted in an abbreviated form. The arrangement is therefore a simple alphabetical list of the abbreviations, uncomplicated by syllabic or verbal limitations.

The list has also to serve the Recorders and others as a list of Journals, and for this purpose it is important that it should be fairly complete as regards current periodicals. In order to increase the utility of the list, the abbreviations have been made on a uniform system; but a few exceptions have, in practice, been found necessary. The chief points that have been kept in view in constructing the abbreviations may be briefly stated as follows:—

The words selected as distinctive in each title are reduced in most cases to three or four.

A distinct abbreviation is used for each different word, and the same abbreviation for the same word is used throughout the list.

Accents are omitted. As a rule the first word of the title is represented by an abbreviation, but this rule is departed from in the case of articles and prepositions, and occasionally in the case of adjectives that are useless for distinctive purposes. Thus "Annual Report" becomes "Rep.," and "Occasional Papers" becomes "Pap." Such adjectives as "New" and "Royal" are omitted, except when necessary for distinctive or other purposes.

The consecutive order of the words of the title is maintained in the abbreviation, except in a few cases where the arrangement of the words in the title is very unusual or faulty.

As an example of the form of abbreviation that is aimed at, we may take Bull. Soc. Moscou. The name of the locality is given at greater length than the more frequently used portions of the abbreviation.

After the titles, the place of publication is given, and this is followed by letters indicating some of the principal libraries in which the works may be consulted. The explanation of these letters is as follows:—

- N. = British Museum Natural History: general library.
 Nz = " " library, zoological department.
 Ng. = " " geological " "
 K. = Science library; Victoria and Albert Museum.
 R. = Royal Society library.
 Z. = Zoological Society library.
 L. = Linnean
 C. = Cambridge University library.
 C, p or (C) p = Cambridge Philosophical Society library.
 b, or g, or y, after C, or (C) = Cambridge Balfour, or Woodwardian Museum, or Physiological libraries respectively.
 O. = Radcliffe library, Oxford.
 § is prefixed to titles added since the last list, and to changes of titles when important.

Abeille—L'Abeille: Journal d'entomologie publié par la Société entomologique de France. (Paris, 8vo.) Nz. C.

Abh. Ak. Berlin—Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin. (Berlin, 4to.) N. K. R. Z. L. C, p. O.

Abh. Bayer. Ak.—Abhandlungen der mathematisch-physikalischen Classe der königlichen Bayerischen Akademie der Wissenschaften. (München, 4to.) N. K. R. Z. L. C, p. O.

Abh. Böhmisch. Ges.—Abhandlungen der mathematisch-naturwissenschaftlichen Classe der k. Böhmisches Gesellschaft. [Called also] *Rozprawy tridy matematicko-přirodověcké královské Ceske společnosti Nauk.* (Prag, 4to.) N. K. R. L. C, p.

Abh. deutsch. Seefisch.-Ver.—Abhandlungen des deutschen Seefischerei-Vereins. (Berlin, 4to.) Nz. C.

Abh. geol. Karte Elsass—Abhandlungen zur geologischen Spezial-Karte von Elsass-Lothringen. (Strassburg, 8vo.) Ng.

Abh. geol. Landesanst. Darmstadt—Abhandlungen der grossherzoglich Hessischen geologischen Landesanstalt zu Darmstadt. (Darmstadt, 8vo.) Ng.

Abh. geol. Reichsanst.—Abhandlungen der Kaiserlich-Königlichen geologischen Reichsanstalt. (Vienna, 4to.) Ng. R. L. C, p.

Abh. Ges. Görlitz—Abhandlungen der naturforschenden Gesellschaft zu Görlitz. (Görlitz, 8vo.) N. K. R.

Abh. Ges. Götting.—Abhandlungen der königlichen Gesellschaft der Wissenschaften zu Göttingen. Mathematisch-Physikalische Klasse. Neue Folge. (Göttingen, 4to.) N. R. Z. L. C, p. O.

Abh. Ges. Halle—Abhandlungen der naturforschenden Gesellschaft zu Halle. (Halle, 4to.) N. K. R. Z. L. C. O.

Abh. Ges. Isis—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft 'Isis' in Dresden. (Dresden, 8vo.) N. K. Z. C.

Abh. Ges. Königsb.—[Part of *Schr. Ges. Königsb.*, q.v.]

- Abh. Ges. Nürnberg*—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg. (Nürnberg, 8vo.) N. K. C.
- § *Abh. Ges. Wien*—Abhandlungen der K. K. zoologischen-botanischen Gesellschaft in Wien. N. K. R. Z. L. C. O.
- Abh. Hamburg. Anst.*—[Part of *Jahrb. Hamburg. Anst.*, q.v.]
- Abh. Mus. Dresden*—Abhandlungen und Berichte des königlichen zoologischen und anthropologisch-ethnographischen Museums zu Dresden. (Berlin, 4to.) Nz. Z. C.
- Abh. Preuss. geol. Landesanst.*—Abhandlungen der königlich Preussischen geologischen Landesanstalt (Neue Folge). [Formerly *Abh. geol. Spezialkarte von Preussen und den Thüringischen Staaten.*] (Berlin, 8vo.) Ng. K. C.
- Abh. Sachs. Ges.*—Abhandlungen der k. Sächsischen Gesellschaft der Wissenschaften. (Leipzig, 4to.) N. K. R. C, p.
- Abh. Schweiz. pal. Ges.*—Abhandlungen der Schweizerischen paläontologischen Gesellschaft. *Mémoires de la Société Paléontologique suisse.* (Basel, &c., 4to.) Ng. R. Z. (C) g. O.
- Abh. Senckenb. Ges.*—Abhandlungen herausgegeben von der Senckenbergischen naturforschenden Gesellschaft. (Frankfort a.-M., 4to.) N. K. R. Z. L. C. O.
- Abh. Ver. Bremen*—Abhandlungen herausgegeben vom naturwissenschaftlichen Verein zu Bremen. (Bremen, 8vo.) N. K. R. Z. L. C.
- Abh. Ver. Hamburg*—Abhandlungen aus dem Gebiete der Naturwissenschaften herausgegeben vom naturwissenschaftlichen Verein in Hamburg. (Hamburg, 4to.) N. K. R. Z. L. C, b.
- Abh. Ver. Karlsruhe*—[Vide *Verh. Ver. Karlsruhe.*]
- Abh. Ver. Kassel*—[Issued with *Ber. Ver. Kassel*, q.v.]
- Abh. Ver. Lotos*—Abhandlungen des deutschen naturwissenschaftlich-medicinischen Vereines für Böhmen "Lotos." (Prag, 4to.) N. C.
- Acta Ac. German.*—N. *Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ naturæ curiosorum.* [Called also] *Verhandlungen der k. Leop.-Carol. deutschen Akademie der Naturforscher.* (Halle, 4to.) N. K. R. Z. L. C, p. O.
- Act. Ac. Cordoba*—*Actas de la Academia nacional de Ciencias en Córdoba.* (Buenos Aires, 4to.) N. R. Z. L.
- Acta Soc. Faun. Fenn.*—*Acta Societatis pro Fauna et Flora Fennica.* (Helsingfors, 8vo.) N. R. L.
- Acta Soc. Lund.*—*Acta regię Societatis physiographicę Lundensis.* [Published as part of *Acta Univ. Lund.*, q.v.]
- Acta Soc. Sci. Fenn.*—*Acta Societatis Scientiarum Fennicę.* (Helsingfors, 4to.) N. K. R. Z. (C) p.
- Acta Soc. Upsal.*—*Nova Acta regię Societatis Scientiarum Upsaliensis.* (Upsala, 4to.) N. K. R. Z. L. C, p.
- Acta Univ. Lund.*—*Acta Universitatis Lundensis.* [Called also] *Lunds Universitets Årsskrift*, [and includes] *Acta regię Societatis physiographicę Lundensis*, [also called] *Kongl. fysiografiska Sällskapet i Lund Handlingar.* (Lund, 4to.) N. K. R. L. C, p.
- § *Actes Mus. Rouen*—*Actes du Muséum d'histoire naturelle de Rouen.* (Rouen, 8vo.) N. L.

- Act. Soc. Bordeaux*—Actes de la Société Linnéenne de Bordeaux. (Bordeaux, 8vo.) N. Z. C.
- Act. Soc. Chili*—Actes de la Société scientifique du Chili. (Santiago, 4to.) R. Z.
- Act. Soc. Espan.*—Actas de la Sociedad española de historia natural. (Madrid, 8vo.) N. R. Z. C.
- Act. Soc. Helvet.*—Actes de la Société Helvétique des Sciences naturelles. [Called also] Verhandlungen der schweizerischen naturforschenden Gesellschaft. (Basel, &c., 8vo.) N. K. R. L. C. O.
- Afh. Mus. Lund.*—E Museo Lundii. En Samling af Afhandlinger. (Kjobnhavn, 8vo.) N. K. R. Z. L.
- Agric. Gaz. N. S. W.*—The Agricultural Gazette of New South Wales. (Sydney, 8vo.) Nz. R.
- § *Agric. Ledger*—The Agricultural Ledger. (Calcutta, 8vo.) Nz.
- Allg. Zeitschr. Ent.*—Allgemeine Zeitschrift für Entomologie. Organ der "Allgemeinen entomologischen Gesellschaft." (Neudamm, 8vo.) [Formerly called *Illustr. Zeitschr. Ent.*]
- Amer. Geol.*—The American Geologist, a Monthly Journal of Geology and allied Sciences. (Minneapolis, 8vo.) Ng. K. O.
- § *Amer. J. Anat.*—The American Journal of Anatomy. (Baltimore, 8vo.) (C) b.
- Amer. J. Physiol.*—The American Journal of Physiology. (Boston, 8vo.) N. K. R. (C) y. O.
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- Amer. Micr. J.*—The American Monthly Microscopical Journal. (Washington, 8vo.) N. O.
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THE ZOOLOGICAL RECORD

FOR 1901.

I. GENERAL SUBJECTS.*

BY

Prof. J. ARTHUR THOMSON, M.A.

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* It will be understood that papers recorded here may also be found under the various classes, II—XVIII. They are included here because of their bearing on general questions. which, if not obvious, will be made apparent in the Subject-Index.

INTRODUCTION.

FOLLOWING the order of the subject-index we may first note the continuation of BRONN's "Thierreich" (78), a further instalment of RAY LANKESTER's *Treatise on Zoology* (365), and the second volume of the revised edition of GEGENBAUR's *Comparative Anatomy* (237).

Important general essays are those of BATESON (34), PEARSON (508), RADL (549), DRIESCH (144), REINKE (576), and there are many others. Sir MICHAEL FOSTER's history of physiology in the 16th, 17th, and 18th centuries (201) occupies a foremost place among the historical studies, but we would also note Mrs OGILVIE-GORDON's translation of ZITTEL's history of palæontology and geology (726), and PACKARD's account of Lamarck and his work (499).

Concerning distribution, we may especially mention the works of KOBELT (349), NEWBIGIN (477), FERRONNIÈRE (180), and VOIGT (686).

General morphological memoirs are well represented by those of DOHRN (142), and RABL (547); and general physiological works by D'ARSONVAL and others (128), DRIESCH (144), DUBOIS & COUVREUR (159).

BÜTSCHLI (84 & 85) continues his study of the intricacies of plasmic structure, and there are several other interesting investigations of the same general character by GOLGI (256) and others. Papers dealing with the centrosome continue to be numerous. GALLARDO (219) offers a new interpretation of karyokinetic figures.

The section on germ-cells includes BOVERI's study on the polarity of the sea-urchin ovum (72), a theory of the corpus luteum, FRÄNKEL & COHN (211), many studies on spermatozoa by PROWAZEK (537), BROMAN (77), MCCLUNG (408), LOISEL (395), REGAUD (569), and others. Noteworthy are the researches on artificial parthenogenesis by LOEB (385), DELAGE (133), MATTHEWS (427), WILSON (711), and others.

Theoretical embryology is represented by such essays as those of DRIESCH (144), HERBST (288), and ROUX (592). The co-operative treatise on embryology, edited by OSCAR HERTWIG (293A), promises to be a monumental work. A neat piece of concrete research will be found in ROSNER's paper on the origin of monochoiral twins (590). The number of papers describing embryological experiments is again large, and reference may be made to those of DELAGE (134), MORGAN (462), and WILSON (712).

In the section *Reproduction and Sex*, we note EWART's experiments (175), the new edition of 'The Evolution of Sex' (236), RÖRIG's study of antlers (583), and the re-discovery of MENDEL's law (436). Recent work on regeneration is summed up in MORGAN's treatise (457), and there are important special studies by PRZIBRAM (540), HERBST (287), TORNIER (659), WOLFF (718), and several others.

Among the contributions to the theory of heredity, we may notice especially those of ADAMI (1), BATESON (34), EWART (175), PEARSON (510, etc.); and among more special investigations KENNEL's story of a curtailed cat is particularly interesting (338). The Lamarckian position is well represented by COSTANTIN's book (112).

In the year's evolution-literature, the foremost place must be given to the work of DE VRIES (137), and to the re-discovery of Mendel's paper (436) of 1865. The number of variation-statistic papers is on the increase, e.g. BROWNE (80), CAMERANO (92), PEARSON (506, etc.), LUDWIG (403A). EWART's work (175-177) also claims attention, and the appearance of *Biometrika* (735) is an event in itself. In regard to Natural Selection the most important papers are those by WELDON (704A) and BEETON & PEARSON (40A).

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2. ADAMS, C. C. Baseleveling and its faunal significance, with illustrations from South-eastern United States. Amer. Natural. *xxxv*, pp. 839-851, 5 figg.
3. ALBRECHT, E. Die "Ueberwindung des Mechanismus" in der Biologie. Bemerkungen zu O. Hertwig's Vortrag: "Die Entwicklung der Biologie im 19 Jahrhundert." Biol. Centrbl. *xxi*, pp. 97-106, 129-133.
4. *——. Pathologie der Zelle. I. Der physikalische Bau des Nucleolus in normalen und pathologischen Zuständen. Ergebn. Allg. Pathol. *vi*, pp. 900-951.
5. ALCOCK, A. W. Zoological gleanings from the Royal Indian Marine Survey Ship "Investigator." 4to, Simla, 41 pp.
Reprint from Scient. Mem. by Medical Officers of the Army, India. Part *xii*, pp. 35-76.
Commensalism, Sex characters, Protective adaptations, Phosphorescence etc.
6. *ALLEN, GRANT [the late]. In Nature's Workshop. 8vo, London, pp. 240, 100 figg.
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9. *——. La lotta per l' esistenza sostenuta dall' Uomo contro gli Animali. Parma, 66 pp.
10. ——. [See also PESCI & ANDRES (515).]
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— [See also MENDEL, G. (436).]
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II. MAMMALIA.

BY

R. LYDEKKER.

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INTRODUCTION.

THE number of books and papers recorded for 1901 somewhat exceeds those enumerated in 1900; that list being in excess of the one for the previous year.

In zoological circles the first year of the 20th century will probably be known as the "okapi year." Of even greater importance than the okapi is the discovery in Egypt of Eocene mammals (described by ANDREWS) which seem to go a long way in solving the puzzle of the origin of the Proboscidea and are also of the highest interest from a distributional point of view. GRANDIDIER's description of Edentate remains from Madagascar, apparently referable to the ground-sloths, is likewise a fact of first class importance. ABEL's investigations on the presence of a dermal armour in extinct Cetaceans also demand special notice; while WORTMAN's description of the Eocene Carnivora of the United States has revealed many interesting facts.

Among other discoveries, reference may be made to SCHLOSSER's determination of a new genus of Anthropoid ape from the Tertiaries of the continent, and also to SATUNIN's description of a hitherto unrecognized generic type of murine rodent from the Caucasus. LANKESTER's redetermination of the affinities of *Eluorpus* is likewise worthy of mention.

The catalogues of North American Mammals by ELLIOT, MILLER and REHN are works that will prove invaluable to the systematist; while to the distributionalist BLANFORD's memoir on the geographical divisions of the Indian fauna is of the highest interest.

The investigation by BENSLEY into the phylogeny of marsupials promises to revolutionize our conception of the relationship and history of that group. In this connection reference may be made to GRÖNBERG's studies of mammalian ontogeny.

JOHNSON's work on the minute structure of the retina of the mammalian eye has opened up a new field of investigation. KOELLIKER's study of the medulla oblongata, and ZIEHEN's description of the nervous system of marsupials and monotremes are likewise valuable anatomical works. Neither must MAJOR's investigations into the relationship between the anthropoid and lemuroid skull, or TIMS's tooth-genesis in the *Caviida* be passed over without notice.

No relaxation in systematic work is noticeable during the year, the chief English labourers in this field being BONHOTE, DE WINTON, and THOMAS. It is sincerely to be hoped that generic names of the nature of those proposed by AMEGHINO will not come into fashion.

I. TITLES.*

1. ABEL, O. Untersuchungen ueber die fossilen Platanistiden des Wiener Beckens. Denk. Ak. Wien lxxviii, pp. 839-874, pls. i-iv, 1899. [*Cetacea*.]
2. —. Les Dauphins Longirostres du Baldérien (Miocène Supérieur) des Environs d'Anvers. Mem. Mus. Belgique i, pp. 1-95, pls. i-xv. [*Cetacea*.]
3. —. Ueber die Hautbepanzerung fossiler Zahnwalle. Beitr. Pal. Oesterr.-Ung. xiii, pp. 299-317, pls. xx & xxi. [*Cetacea*.]

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

4. ADLOFF, P. Zur Entwicklungsgeschichte des Zahnsystems von *Sus scrofa domest.* Anat. Anz. xix, pp. 481-490. [*Suidæ.*]
5. ALBERT, F. La Chinchilla. An. Univ. Chile 1900, pp. 913-934. [*Chinchillidæ.*]
6. —. Los Pinipedos de Chile. Act. Soc. Chile xi, pp. 215-272. [*Pinipedidæ.*]
7. ALCOCK, N. H. & MOFFAT, C. B. The natural history of Irish Bats; the Long-eared Bat (*Plecotus auritus*). Irish Natural x, pp. 241-244. [*Chiroptera.*]
8. ALEXANDER, G. Das Labyrinthpigment des Menschen und der höheren Säugethiere. Arch. mikr. Anat. lviii, pp. 1-133, pls. i-iii.
- 8A. — & KREIDL, A. Anatomisch-physiologische Studien ueber das Ohr-labyrinth der Tazmanas. Arch. ges. Physiol. lxxxviii, pp. 509-574, pls. iii-v. [*Muridæ.*]
9. ALEXANDER, —. Le canal rachidien et les fonctions de locomotion chez les Mammifères. C.R. Soc. Biol. liii, pp. 918-920.
10. —. Les muscles du membre posterieur du Kangourou (*Macropus beanetti*). T. c. pp. 971 & 972. [*Marsupialia.*]
11. —. Étude anatomique de le Cobaye. J. Anat. Physiol. norm. path. xxvii, pp. 102-126. [*Cariidæ.*]
12. ALLEN, G. M. The Louisiana Deer. Amer. Natural. xxxv, pp. 449-454, figg. [*Cervidæ.*]
13. ALLEN, J. A. The Mountain Caribou of Northern British Columbia. Bull. Amer. Mus. xiii, pp. 1-18, figg., 1900. [*Cervidæ.*]
14. —. Note on the Wood Bison. T. c. pp. 63-68. [*Bovidæ.*]
15. —. List of Bats collected by Mr H. H. Smith in the Santa Marta region of Colombia, with descriptions of new species. T. c. pp. 87-94.
The title of this paper is omitted from Zool. Rec. xxxvii, although the species described are quoted. The other papers by the same author from Vol. XIII of the Bulletin, here quoted, were not received in time for insertion in the last Zool. Rec.
16. —. Note on the generic names *Didelphis* and *Philander*. T. c. pp. 185-190. [*Marsupialia.*]
17. —. Descriptions of two new species of South American *Muridæ*. Ibid. xiv, pp. 39 & 40.
18. —. On a further collection of Mammals from South-eastern Peru collected by Mr H. H. Keays, with descriptions of new species. T. c. pp. 41-46. [*Muridæ.*]
19. —. The Musk-oxen of Arctic America and Greenland. T. c. pp. 69-86, pls. xii-xvi. [*Bovidæ.*]
20. —. Description of a new Caribou from Kenai Peninsula, Alaska. T. c. pp. 143-148, figg. [*Cervidæ.*]
- 20A. —. A preliminary study of the North American Opossums of the genus *Didelphis*. T. c. pp. 149-188. [*Marsupialia.*]
21. —. Descriptions of two new Opossums of the genus *Metachirus*. T. c. pp. 213-218. [*Marsupialia.*]
22. —. New South American *Muridæ* and a new *Metachirus*. T. c. pp. 405-412. [*Muridæ* and *Marsupialia.*]

23. [ALLEN, J. A.] The generic names *Myrmecophaga* and *Tamandua*, and the specific names of the Opossums of the genus *Didelphis*. P. Soc. Washington xiv, pp. 91-93. [*Edentata* and *Marsupialia*.]
24. —. The proper generic names of the Viscacha, Chinchillas, and their allies. T. c. pp. 181 & 182. [*Chinchillidæ*.]
25. —. Notes on the names of a few South American Mammals. T. c. pp. 183-185.
- 25A. —. The generic names of the *Mephitinæ*. T. c. pp. 325-334. [*Mustelidæ*.]
26. AMEGHINO, F. Notices préliminaires sur des Ongulés nouveaux des terrains crétacés de Patagonie. Bol. Ac. Cordoba xvi, pp. 349-426. [*Primates*, *Ungulata*.]
27. —. *Grypotherium*, nom de genre à effacer. Comun. Mus. Buenos Aires i, pp. 257-260. [*Edentata*.]
28. ANDERSON, J. & DE WINTON, W. E. On an undescribed species of Hedgehog from South Arabia. Ann. Nat. Hist. (7) vii, pp. 42-45. [*Insectivora*.]
29. ANDERSON, R. J. A note on a Beaked Whale, *Mesoplodon hectori* Gray. Irish Natural. x, pp. 117-119, figg. [*Cetacea*.]
30. ANDREWS, C. W. Preliminary note on some recently discovered extinct Vertebrates from Egypt. Geol. Mag. (4) viii, pp. 400-409 & 436-444, figg. [*Proboscidea*.]
31. —. A new name for an Ungulate. Nature lxiv, p. 577. [*Proboscidea*.]
32. ATKINSON, R. T. The early development of the circulation in the suprarenal of the Rabbit. Anat. Anz. xx, pp. 610-612, figg. [*Leporidae*.]
33. BANGS, O. The Mammals collected in San Miguel Island, Panama, by W. W. Brown, Jr. Amer. Natural. xxxv, pp. 631-644. [*Rodentia* and *Marsupialia*.]
34. BANCHI, A. La parafibula nei Marsupiali. Anat. Anz. xx, pp. 273-283. [*Marsupialia*.]
35. BATE, D. M. A. (Miss). A short account of a bone-cave in the Carboniferous Limestone of the Wye Valley. Geol. Mag. (4) viii, pp. 101-106, figg. [*Rodentia*.]
36. BEDDARD, F. E. Some notes upon the brain and other structures of *Centetes*. Nov. Zool. viii, pp. 89-92, pl. viii. [*Insectivora*.]
37. —. On certain points in the anatomy of *Callithrix torquata*. T. c. pp. 362-366, pl. xi. [*Primates*.]
38. —. Notes on the Broad-nosed Lemur (*Hapalemur simus*). P. Zool. Soc. London 1901, i, pp. 121-129. [*Primates*.]
39. —. A note upon *Galago garnetti*. T. c. pp. 271-276, figg. [*Primates*.]
40. —. Contribution towards a knowledge of the osteology of the Pigmy Whale (*Neobalæna marginata*). Tr. Zool. Soc. London xvi, pp. 87-114, pls. vii-ix. [*Cetacea*.]
41. BEMMELLEN, J. F. VAN. Third note concerning certain details of the Monotreme skull. P. Ak. Amsterdam 1901, pp. 405-407. [*Monotremata*.]

42. [BEMMELÉN, J. F. VAN.] Der Schädelbau der Monotremen. Denk. Ges. Jena vi; Semon's Reise iii, pp. 731-799, pls. xxx-xxxii. [*Monotremata*.]
43. BENHAM, W. B. On the larynx of certain Whales (*Cogia*, *Balaenoptera*, and *Ziphius*). P. Zool. Soc. London 1901, i, pp. 278-300, pls. xxv-xxviii. [*Cetacea*.]
44. —. On the anatomy of *Cogia breviceps*. Ibid. ii, pp. 107-134, pls. viii-xi. [*Cetacea*.]
45. BENSLEY, B. A. On the question of an arboreal ancestry of the Marsupialia, and the inter-relationships of the Mammalian subclasses. Amer. Natural. xxxv, pp. 117-138. [*Marsupialia*.]
46. —. A theory of the origin and evolution of the Australian Marsupialia. T. c. pp. 245-268, pls. i-iii. [*Marsupialia*.]
47. —. A cranial variation in *Macropus bennetti*. Bull. Amer. Mus. xiii, pp. 109 & 110, fig., 1900. [*Marsupialia*.]
48. BLANFORD, W. T. The distribution of Vertebrate animals in India, Ceylon, and Burma. Phil. Trans. (B) cxciv, pp. 335-436, map.
49. —. Directions of spirals in horns. Nature lxxiii, p. 298. [*Bovidae*.]
50. BONHOTE, J. L. On the Squirrels of the *Sciurus erythraeus* group. Ann. Nat. Hist. (7) vii, pp. 160-167. [*Sciuridae*.]
51. —. On the Squirrels of the *Sciurus prevostii* group. T. c. pp. 167-177. [*Sciuridae*.]
52. —. On *Sciurus caniceps* and allied species. T. c. pp. 270-275. [*Sciuridae*.]
53. —. On the Martens of the *Mustela flavigula* group. T. c. pp. 342-349. [*Mustelidae*.]
54. —. On *Sciurus notatus* and allied species. T. c. pp. 444-455. [*Sciuridae*.]
55. —. On two new species of Squirrels from the East Indies. T. c. pp. 455-457. [*Sciuridae*.]
56. —. On a second collection of Mammals made by Mr T. H. Lyle in Siam. P. Zool. Soc. London 1901, i, pp. 52-56. [*Sciuridae*.]
57. BOTEZAT, E. Die Innervation des harten Gaumens der Säugethiere. Zeitschr. wiss. Zool. lxix, pp. 429-443, pls. xxx & xxxi.
58. BOTTI, U. Sui molari di Elefante. Boll. Soc. geol. Ital. xx, pp. 438-444. [*Proboscidea*.]
59. BROOM, R. Note on an Echidna with eight cervical vertebrae. P. Linn. Soc. N. S. Wales 1900, pp. 733 & 734. [*Monotremata*.]
60. —. On the ossification of the vertebrae in the Wombat and other Marsupials. T. c. pp. 735-739. [*Marsupialia*.]
61. BROWN, A. E. On some points in the phylogeny of the *Primates*. P. Ac. Philad. liii, pp. 119-125. [*Primates*.]
62. BURCKHARDT, G. Die Implantation des Eies der Maus in die Uterus-schleimhaut und die Umbildung derselben zur Decidua. Arch. mikr. Anat. lvii, pp. 528-569, pls. xxvi-xxviii. [*Muridae*.]
63. BURCKHARDT, R. Das Gehirn zweier subfossiler Riesenlemuren. Anat. Anz. xx, pp. 229-237, figg. [*Lemuroidea*.]

64. BURNE, R. H. A contribution to the myology and visceral anatomy of *Chlamydomorphus truncatus*. P. Zool. Soc. London 1901, i, pp. 104-121, figg. [*Edentata*.]
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66. CADE, A. Des éléments sécréteurs des glandes gastriques du fond chez les Mammifères. Arch. anat. micr. iv. pp. 1-86, pls. i & ii.
67. CAMERANO, L. Ricerche intorno alle Renne delle Isole Spitzbergha. Mem. Acc. Torino (2) li, pp. 159-240, pls. i-iii. [*Cervida*.]
68. CAMERON, A. G. Typical Stags. Field 1901, pp. 305, 377, 475 & 560. [*Cervida*.]
- CARRIÈRE, G. [See DEFÉRET & CARRIÈRE (76).]
69. CARUCCI, V. Ueber ein elastisches Band im Genus *Bos* und die Homologie desselben mit den Vincula tendinum *Hom.* Anat. Anz. xx, pp. 1-9, pls. i & ii. [*Bovida*.]
70. CHANTRE, E. L'Homme quaternaire dans le bassin du Rhone. Ann. Univ. Lyon 1901, 189 pp., figg. [Contains an account of the Pleistocene Mammalia of the Rhone Valley.]
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- 71A. CHAPMAN, H. C. Observations upon the placenta and foetus of *Dasytus sexcinctus*. P. Ac. Philad. liii, pp. 366, 369, pl. xviii. [*Edentata*.]
72. CHESNAYE, C. P. Notes on the fauna and flora of North-Eastern Rhodesia. Rep. Administration of Rhodesia 1898-1900, pp. 81-85.
73. CREVATIN, F. Ueber das strudelartige Geflecht der Hornhaut der Säugethiere. Anat. Anz. xix, pp. 411-413.
74. DAL PIAZ, G. Di alcuni resti di *Cyrtodelphis sulcatus* dell' arenaria miocenica di Belluno. Palæontogr. ital. vii, pp. 287-292, pl. xxxiv. [*Cetacea*.]
- 74A. DELHEID, E. Une Marmotte Prequaternaire? Ann. Soc. malac. Belgique xxxv, pp. lviii-lx, 1900. [*Sciurida*.]
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II. GENERAL BIOLOGY (INCL. ANATOMY). SUBJECT INDEX.

[† prefixed to a paragraph indicates that it relates in part, or altogether, to extinct forms: when this sign is placed before a specific name it indicates that the species referred to is extinct.]

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- †Fossil from cave in Wye valley, BATE (Miss), Geol. Mag. (4) viii, p. 101.

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- Sciurus erythræus bhutanensis*, Bhutan, p. 161, *castaneiventris ningpoensis*, Ningpo, p. 163, *thaiwanensis*, Formosa, p. 165, *t. centralis*, *t. roberti*, Formosa, p. 166, *prevosti humei*, Selangor, p. *kuchingensis*, Sarawak, p. 170, *p. navigator*, Sirhassen Id., p. 171, *caroli*, Baram, p. 173, *c. griseicauda*, Baram, *baluensis*, Mt. Kina Balu, p. 174, *b. suffusus*, N.W. Borneo, p. 175, *epomophorus*, Malay Peninsula, p. 272, *c. davisoni*, Burma, p. 273, *notatus albescens*, Sumatra, p. 446, *vittatus dulitensis*, Borneo, p. 451, *flaveri*, Siam, p. 456, *andrewsi*, Java, p. 457, Ann. Nat. Hist. (7) vii, *maccllellandi kongensis*, Siam, P. Zool. Soc. London 1901, i, p. 55, BONHOTE; *procerus*, p. 122, *lingungensis*, p. 123, *lutescens*, p. 124, *seraiz*, p. 125, *rutiliventris*, p. 126, *rubdiventris*, p. 127, *lautensis*, p. 128, Natuna Ids., MILLER, P. Washington Ac. iii; *parvus*, Borneo, MILLER, P. Soc. Washington xiv, p. 33; Mexico, *yucateensis balliolus*, *deppiei vivax*, Campeche, NELSON, ibid. p. 131; *griseogena meridensis*, Merida (7) vii, p. 192, *otinus*, Colombia, p. 194, *ingrami*, Minas Geraes, p. 368, *quelchi*, Brit. Guiana, viii, p. 147, *macconelli*, Mt. Roraima, p. 148, THOMAS, Ann. Nat. Hist. (7); *jeffersoni*, Tertiary, Montana, DOUGLASS, Tr. Amer. Phil. Soc. (2) xx, p. 16 : n. spp. & subspp.
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CASTORIDÆ.

- †*Steneoiber hesperus*, p. 11, *complexus*, p. 13, Tertiary, Montana, DOUGLASS, Tr. Amer. Phil. Soc. (2) xx, n. spp.

MURIDÆ.

- Gerbillus stigmomys luteolus*, Upper Nile, *harwoodi*, E. Africa, THOMAS, Ann. Nat. Hist. (7) viii, p. 275, *watersi*, Upper Nile, DE WINTON, Nov. Zool. viii, p. 399 : n. spp. & subsp.
- Dipodillus dasyuroides*, Palestine, NEHRING, SB. Ges. naturf. Berlin 1901, p. 173, n. sp.
- Mus decumanus*, development of vertebral column, WEISS, Zeitschr. wiss. Zool. lxi, p. 493 ; *rattus* in Russia, SKITKOV, Zool. Anz. xxiv, p. 171 ; *musculus*, development of ovum, SOBOTTA, Verh. Anat. Ges. xxvii, p. 4, BURCKHARDT, Arch. mikr. Anat. lvii, p. 528 ; *hoffmanni*, n. nom. for *rattus celebensis* Hoffmann, 1887, MATSCHIE, Abh. Senckenb. Ges. xxv, p. 284 ; *integer*, Natuna Ids., MILLER, P. Washington Ac. iii, p. 119, n. sp.
- Acomys witherbyi*, Upper Nile, p. 400, *hunteri*, Suakim, p. 401, DE WINTON, Nov. Zool. viii, n. spp.
- Nesocia myosura*, the correct name for *Meriones myosuroides* Wagner, NEHRING, SB. Ges. naturf. Berlin 1901, p. 216.
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- Cricetus nehringi*, Rumania, MATSCHIE, SB. Ges. naturf. Berlin 1901, p. 232, n. sp.
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- Peromyscus prevostensis*, Queen Charlotte Ids., OSGOOD, North Amer. Fauna No. 21, p. 29 ; *cozumela*, Cozumela Id., MERRIAM, p. 103, *leucopus minnesotæ*, MEARNs, p. 154, *oreas rubidus*, California, OSGOOD, p. 193, P. Soc. Washington xiv : n. spp. & subsp.
- Rhipidomys ochrogaster*, Peru, ALLEN, Bull. Amer. Mus. xiv, p. 43 ; *phaeotis*, Peru (7) vii, p. 81, *benevolens*, Bolivia, p. 369, *nitela*, Brit. Guiana, viii, p. 149, THOMAS, Ann. Nat. Hist. (7) : n. spp.
- Tylomys tumbalensis*, p. 560, *bullaris*, p. 561, Mexico, MERRIAM, P. Washington Ac. iii, n. spp.
- Otodylomys*, p. 561, n. g. for *O. phyllotis*, p. 562, Mexico, n. sp., *p. phæus*, Mexico, p. 563, n. subsp., MERRIAM, t. c.
- Nectomys esmeruldarum*, Ecuador, THOMAS, Ann. Nat. Hist. (7) viii, p. 251, n. sp.
- Holochilus guianæ*, Brit. Guiana, THOMAS, t. c. p. 149, n. sp.
- Sigmodon*, n. g. for *Reithrodon alstoni* Thomas, 1880, *savannarum*, Brit. Guiana, n. sp., THOMAS, t. c. p. 150, see also p. 254.
- Sigmodon simonsi*, Peru, ALLEN, Bull. Amer. Mus. xiv, p. 40, n. sp.
- Oryzomys*, synopsis of N. American and Mexican species, MERRIAM, P. Washington Ac. iii, 273 ; *O. natator floridanus*, Florida, p. 277, *albiventer*, Jalisco, p. 279, *cozumela*, Cozumel Id., p. 280, *crinitus*, p. 281, *crinitus aztecus*, p. 280, *mexicanus peragrus*, p. 283, Mexico, *richmondi*, Nicaragua, p. 284, *jalupe rufinus*, Mexico, p. 285, *zygomatiscus*, p. 285, Guatemala, *teapensis*, p. 286, *rufus*, p. 287, *goldmani*, p. 288, *chapmani caudatus*, p. 289, *c. saturator*, *c. dilutior*, *palatinus*, p. 290, *hylocetes*, p. 291, Mexico, *rhabdops*, p. 291, *angusticeps*, p. 292, Guatemala, *rostratus*, p. 293, *r. megadon*, p. 294, Mexico, *yucatanensis*, Yucatan,

- p. 294, MERRIAM, t. c.; *cozumelæ*, Cozumela Is., MERRIAM, P. Soc. Washington xiv, p. 103; *luciae*, Santa Lucia, F. MAJOR, vii, p. 204; *navis messorius*, Brit. Guiana, viii, p. 204, *tectus*, p. 251, *panamensis*, p. 252, Panama, *lamia*, Rio Jordão, p. 528, *bolivæ*, Bolivia, p. 537, THOMAS, Ann. Nat. Hist. (7); *medius*, Venezuela, ROBINSON & LYON, P. U. S. Mus. xxiv, p. 142; *bolivaris*, p. 405, *castaneus*, p. 406, Ecuador, *perenensis*, Peru, p. 406, *rivularis*, Ecuador, p. 407, ALLEN, Bull. Amer. Mus. xiv : n. spp. & subspp.
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- Reithrodontomys tenuirostris*, p. 547, *t. aureus* and *microdon*, p. 548, *m. albilabris*, p. 594, Guatemala, *chrysopsis toluæ*, p. 549, *perotensis* and *orizabæ*, p. 550, *colimæ* and *c. nerterus*, p. 551, *costaricensis jalapæ* and *goldmani*, p. 552, *hirsutus* and *griseoflavus*, p. 553, *g. helvolus* and *lempes*, p. 554, *l. otus* and *l. toltecus*, p. 555, *saturatus cinereus*, *s. alticola*, and *difficilis*, p. 556, Mexico, *dorsalis*, p. 557, Guatemala, *megalotis zacatecæ*, p. 558, *m. obscurus*, p. 558, Mexico, MERRIAM, P. Washington Ac. iii, n. spp. & subspp.
- Eligmodontia ducilla*, Peru, vii, p. 182, *callosa bolivæ*, Bolivia, viii, p. 253, THOMAS, Ann. Nat. Hist. (7); *morgani*, Patagonia, ALLEN, Bull. Amer. Mus. xiv, p. 409 : n. spp. & subsp.
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- Acodon pulcherrimus cayllomæ*, Caylloma, *p. inambari*, Inambari R., p. 185, *p. cruceri*, Crucero, p. 186, THOMAS, Ann. Nat. Hist. (7) vii; *lutescens*, Peru, p. 46, *tucumanensis*, Tucuman, p. 410, ALLEN, Bull. Amer. Mus. xiv : n. spp. & subspp.
- Oryzomys iris*, Beni R., *mimus*, Puno, vii, p. 183, *roberti*, Rio Jordão, viii, p. 530, THOMAS, Ann. Nat. Hist. (7), n. spp.
- Blarinomys brevipes*, note and fig., GOELDI, Bol. Mus. Para. iii, p. 166.
- Phenacomys albipes*, California, MERRIAM, P. Soc. Washington xiv, p. 125, n. sp.
- Microtus miurus*, Cook Inlet, Alaska, OSGOOD, North Amer. Fauna No. 21, p. 64; *parvus*, N. E. Caucasus, SATUNIN, Mt. Kaukas. Mus. i. p. 117 : n. spp.
- Steneocranius*, n. subg. for *Microtus slowzovi* Poljak. 1881, KASCENKE, Annuaire Mus. St. Petersb. vi, p. 166.
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- Sicista* Gray, 1827, antedates *Sminthus* Keys & Blasius, 1840, ALLEN, P. Soc. Washington xiv, p. 185.
- +*Eumys minor*, Tertiary, Montana, DOUGLASS, Tr. Amer. Phil. Soc. (2) xx, p. 16, n. sp.

SPALACIDÆ, GEOMYIDÆ and HETEROMYIDÆ.

- Spalax nehringi*, Kasikoporan, Araxes, SATUNIN, Zool. Anz. xxi, p. 314, n. sp. (1898).
- Thomomys latirostris*, Arizona, p. 107, *sinaloæ*, *perditus*, and *goldmani*, Mexico, p. 108, *baileyi*, Texas, *nelsoni*, Mexico, p. 109, *cabazonæ*, California, *aureus pervagus*, New Mexico, p. 110, *aureus perpes*, *angularis pascalis*, and *fuscus fisheri*, California, p. 111, *myops*, Washington, *leucodon navus*, California, *uinta*, Utah, p. 112, *bridgeri*, Wyoming, p. 113, *clusius ocius*, Wyoming, *idahoensis*, Idaho, *deserti-orum*, Arizona, p. 114, *pygmaeus*, Idaho, *douglasi oregonus*, Oregon, p. 115, *limosus*, Washington, *hesperus*, Oregon, p. 116, *niger*, Oregon, p. 116, MERRIAM, P. Soc. Washington xiv : n. spp. & subspp.

- Heteromys australis*, Ecuador, THOMAS, Ann. Nat. Hist. (7) vii, p. 194, n. sp.
Microdipodops megacephalus oregonensis, Oregon, *pallidus*, Nevada, p. 127, *californicus*, California, p. 128, MERRIAM, P. Soc. Washington xiv, n. spp. & subsp.
Perognathus fallax pallidus, California, MEARN, P. Washington Ac. xiv, p. 135, n. sp.

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- Capromys elegans* (?) Cuba, CABRERA, Bol. Soc. espan. i, p. 372, *prehensilis gundlachi*, Id. of Pines, CHAPMAN, Bull. Amer. Mus. xiv, p. 317; *geayi*, Venezuela, POUSARGUES, Bull. Mus. Paris 1899, p. 150, n. spp. & subsp.
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Proechimys guairæ, Venezuela, THOMAS, P. Soc. Washington xiv, p. 27; *burru*, San Miguel Id., BANGS, Amer. Natural. xxxv, p. 640; *roberti*, Rio Jordão, p. 531, *bolivianus*, Bolivia, p. 537, THOMAS, Ann. Nat. Hist. (7) viii; n. spp.
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DASYPROCTIDÆ and CAVIIDÆ.

- Tooth-genesis in *Caviidæ*, TIMS, J. Linn. Soc.-Zool. xxviii, p. 261.
Dasyprocta callida, San Miguel Id., BANGS, Amer. Natural. xxxv, p. 635; *ruatanica*, Ruatan Id., Honduras, THOMAS, Ann. Nat. Hist. (7) viii, p. 272; n. spp.
Cavia boliviensis, Bahía Blanca, vii, p. 193, *porcellus guianæ*, B. Guiana, viii, p. 152, *rufescens pamparum*, Corrientes, p. 539, THOMAS, Ann. Nat. Hist. (7), n. sp. & subsp.; *aperea*, nerve-cells, MUHLMANN, Anat. Anz. xix, p. 377, anatomy, ALEZAIS.

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- Lepus (Tapeti) incitatus*, San Miguel Id., BANGS, Amer. Natural. xxxv, p. 633; *hawkeri*, Up. Nile, THOMAS, Ann. Nat. Hist. (7) viii, p. 277; 1901. [VOL. XXXVIII.]

- varronis*, Alps, MILLER, P. Soc. Washington xiv, p. 97; *transylvanicus*, Rumania, MATSCHIE, SB. Ges. naturf. Berlin 1901, p. 236 : n. spp.; *cuniculus*, suprarenal capsules, GUIEYSSE, J. Anat. Physiol. xxxvii, p. 312, ATKINSON, Anat. Anz. xx, p. 610, nervous system, WALLENBERG, t. c. p. 175, KRAUSE & PHILIPPSON, Arch. mikr. Anat. lvii, p. 488, blood, TSCHISTOWITCH & PIOWAROW, t. c. p. 335.
- Sylvilagus surdaster*, Ecuador, vii, p. 543, *minensis*, Rio Jordão, viii, p. 534, *paraguensis*, Paraguay, p. 539, THOMAS, Ann. Nat. Hist. (7), n. spp.
- Romerolagus nelsoni*, its relationship, NELSON, Rev. Soc. Antonio Alzate 1901, No. 3.
- Ochotona dauurica* the proper name for the Daurian Pica, THOMAS, P. Soc. Washington xiv, p. 24.
- +*Palæolagus temnodon*, Tertiary, Montana, DOUGLASS, Tr. Amer. phil. Soc. (2) xx, p. 14, n. sp.

INCERTÆ SEDIS.

- +*Cylindrodon*, n. g. for *C. fontis*, Tertiary, Montana, DOUGLASS, Tr. Amer. phil. Soc. (2) xx, p. 15.

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ARTIODACTYLA—BOVIDÆ.

- Direction of horn-spirals, WHERRY, Nature lxiii, p. 252, action of those of *Ovis* in collecting sound, *ibid.* lxxv, p. 127; structure of horns, LÖNNBERG, Svenska Ak. Handl. xxxv, No. 3, p. 1; domesticated cattle of Assyria and Egypt and their relation to wild species, DÜRSST (85); antelopes of White Nile, DUNN, P. Zool. Soc. London 1901, ii, p. 291; do. in Leyden Museum, JENTINK, Notes Leyden Mus. xxiii, p. 17.
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- Ovibos moschatus*, distribution, GREVÉ, SB. Ges. Dorpat xii, p. 371, hunting, MADSEN, Zool. Garten xlii, p. 129; *m. wardi*, description and figures, ALLEN, Bull. Amer. Mus. xiv, p. 69; in captivity, NEHRING, SB. Ges. naturf. Berlin 1901, p. 151, SORDELLO, Atti Soc. Ital. xxxix, p. 357.
- Ovis mexicanus*, Mexico, p. 30, *canadensis auduboni*, Upper Missouri, p. 31, MERRIAM, P. Soc. Washington xiv, *fannini*, Yukon, HORNADAY, Rep. N. York Zool. Soc. 1901, p. 78, n. spp. & subsp.; *aries*, the Swiss Bünden sheep, the descendant of the "peat-sheep" of the Pfahlbauten, KELLER, Act. Soc. Helvet. lxxxiii, p. 86, male reproductive organs, MARSHALL, Anat. Anz. xx, p. 261, development, MARSHALL, P. R. Soc. London lxviii, p. 135, ancient Egyptian breeds, DÜRSST & GAILLARD (85 & 86); *canadensis* and *nivicola*, action of horns as ear-trumpets, WHERRY, Nature lxxv, p. 127.
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- Connorchates gnu*, anatomy, LÖNNBERG, Svenska Ak. Handl. xxxiv, No. 3, p. 43.
- Bubalis neumanni* and *lelwel* (? = *jacksoni*), characters of, ROTHSCCHILD, Nov. Zool. viii, p. 177.

- Hippotragus leucophaeus*, its extinction, RENSCHAW, Zoologist (4) v, p. 441.
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 HORNS of *Giraffidæ*, THOMAS, P. Zool. Soc. London 1901, ii, p. 475.
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Rangifer montanus, notes on, xiii, p. 1 (1900), *stonei*, Kenai Peninsula, Alaska, xiv, p. 143, n. sp., ALLEN, Bull. Amer. Mus., see also ELLIOT, Field Mus. Zool. iii, p. 59, where its validity is doubted; *spetzbergensis*, description of, CAMERANO, Mem. Acc. Torino (2) li, p. 159; *dawsoni* S. Thompson, 1900 = *arcticus*, OSGOOD, North Amer. Fauna No. 21, p. 26.
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Mazama pandora, Yucatan, MERRIAM, P. Soc. Washington xiv, p. 105, n. sp.
Capreolus caprea, development, KEIBEL, Verh. Anat. Ges. xvii, p. 184.

TRAGULIDÆ and CAMELIDÆ.

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- Berlin 1901, p. 137 and Globus lxxx, p. 188; an alleged camel from Samos is said by F. MAJOR, Geol. Mag. (4) viii, p. 446, to be a giraffoid.
 †*Protomeryx campester*, Miocene, Colorado, MATTHEW, Mem. Amer. Mus. i, p. 422, n. sp.
 †*Alticamelus*, n. g. for *Procamelus altus* Marsh, 1894, Miocene, Colorado, MATTHEW, t. c. p. 429.

†COTYLOPIDÆ, †AGRIOCHÆRIDÆ, SUIDÆ and DICOTYLIDÆ.

- †*Merychochoerus laticeps*, x, p. 428 (1900), *altiramus*, xi, p. 73, *madisonius*, p. 75, *elrodi*, p. 78, *compressidens*, p. 79, Miocene, Montana, DOUGLASS, Amer. J. Sci. (4), n. spp.
 †*Eporeodon major cedrensis*, Miocene, Colorado, MATTHEW, Mem. Amer. Mus. i, p. 396, n. subsp.
 †*Leptochoerus quadricuspis*, Tertiary, Nebraska, HATCHER, Ann. Carnegie Mus. i, p. 131, n. sp.
 †*Colodon angulatus*, Tertiary, Montana, DOUGLASS, Tr. Amer. phil. Soc. (2) xx, p. 19, n. sp.
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 †*Oreodon robustum*, *ibid.*, DOUGLASS, t. c. p. 28, n. sp.
 †*Eucrotaphus helenæ*, *ibid.*, DOUGLASS, t. c. p. 29, n. sp.
 †*Agriochoerus maximus*, p. 31, *minimus*, p. 32, *ibid.*, DOUGLASS, t. c. n. spp.
 †*Aretotherium*, n. g. for *A. acridens*, *ibid.*, n. sp., DOUGLASS, t. c. p. 33.
Sus natunensis, Natuna Ids., MILLER, P. Washington Ac. iii, p. 117, n. sp.; *scrofa*, development of dentition, ADLOFF, Anat. Anz. xix, p. 481; *scrofa palustris*, osteology, OTTO, Rev. Suisse Zool. ix, p. 43.
Tayassu nanus, Cozumel Id., p. 102, *albirostris ringens*, p. 121, *angulatus humeralis*, p. 122, Mexico, *angulatus yucatenensis*, p. 123, Yucatan, *angulatus crassus*, p. 124, Mexico, n. sp. & subsp., *Olidosus*, p. 120, n. subg. for *T. albirostris*, MERRIAM, P. Washington Ac. xiv.

PERISSODACTYLA.

- Equus* (?) *johnstoni*, Semliki forest, C. Africa, SCLATER, P. Zool. Soc. London 1901, i, p. 50 [see *Okapia*, p. 35]; †*scotti*, xiii, p. 111 (1900), †*giganteus*, xiv, p. 137, Pleistocene, Texas, GIDLEY, Bull. Amer. Mus.; †*tsussenbornensis*, Pliocene, Thuringia, WÜST, Abh. Ges. Halle xxiii, p. 287, n. spp.; *caballus*, cranial osteology, FRASSETTO, Boll. Mus. Torino xvi, No. 385; *przewalskii*, note on, SCLATER, P. Zool. Soc. London 1901, i, 35, TEGETMEIER, Field, Aug. 31, p. 391, GREVÉ, Zool. Garten xlii, p. 275; *quagga*, extinction, RENSCHAW, Zoologist (4) v, p. 41, note on specimens formerly in London Zool. Gardens, SCLATER, op. cit. p. 166; hairs of *Equus*, RIDEWOOD & EWART, *ibid.* p. 87; *granti*, figured, SCLATER, op. cit. ii, pl. xxix.
 †*Hipparion gracilis* in Rumania, SIMIONESCU, Verh. geol. Reichsanst. 1901, p. 311.
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†*Lophiodon iselensis*, from Eocene of Monte Boles, OMBONI, Atti. Ist. Veneto lx, p. 631.

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Elephas (+*primigenius*, ivory, LYDEKKER, Rep. Smithson. Inst. 1899, p. 361, in Rumania, RICCI, Rend. Acc. Lincei x, p. 14; in Siberia, id. Boll. Soc. geol. Ital. xx, p. 368; in Tuscany, id. Palæontogr. ital. vii, p. 120; *trogontherii* in Lucca, RICCI, Rend. Acc. Lincei x, p. 93; *meridionalis* in Calabria, SETEFANO, Boll. Soc. geol. Ital. xx, p. 339.

†*Palæomastodon*, n. g. for *P. beadnelli*, Oligocene, Egypt, n. sp., ANDREWS, Geol. Mag. (4) viii, p. 491.

†*Moeritherium*, n. g. for *M. lyonsi*, Eocene, Egypt, n. sp., ANDREWS, t. c. p. 402.

†*Bradytherium*, n. g. for *B. grave*, Eocene, Egypt, n. sp., ANDREWS, t. c. p. 407 [n.b. systematic position uncertain].

†*Barytherium*, n. nom., to replace *Bradytherium*, preoccupied (see p. 39), ANDREWS, Nature lxiv, p. 577.

INCERTÆ SEDIS.

The following new generic and specific terms have been proposed by AMEGHINO, Bol. Ac. Cordoba xvi, on the evidence of specimens from the mammaliferous strata of Patagonia assigned to the *Ungulata*:—

†*Notohyrax conicus*, *Pseudhyrax eutrachytheroides*, p. 362, *Eohyrax rusticus strangulatus*, p. 363, *Oldfieldthomasia furcata*, *cuneata*, *cingulata*, p. 366, *marginalis*, *conifera*, p. 367, *parvidens*, *pulchella*, *transversa*, p. 368, *septa*, *anfractuosa*, *Anchistrum sulcosum*, p. 369, *Eohegetotherium priscum*, *Eopachyrucos pliciferus*, p. 370, *Pseudopachyrucos foliiformis*, p. 371, *Proadiantus pungidens*, *gibbus*, *secans*, p. 372, *imperfectus*, *Eomorphippus obscurus*, *rutilatus*, p. 373, *Decaconus intricatus*, *Enneoconus parvidens*, p. 378, *Lonchoconus lanceolatus*, *Amithwoodwardia subtrigona*, p. 379, *Ernestkokenia nitida*, *marginata*, p. 380, *Selenoconus centralis*, *senex*, *agilis*, p. 381, *Ernestohakelia aculetea*, *acutidens*, p. 382, *Victorlemoineia labyrinthica*, *emarginata*, *Anisolambda fissidens*, p. 383, *longidens*, *latidens*, *Josepholeidya adunca*, p. 384, *deculca*, *Rutimeyeria conulifera*, p. 385, *Amilnedwardia brevicula*, p. 386, *Propyrosaxeum*, p. 387, *Carlozittelia tapiroides*, p. 388, *elata*, *Paulogervaisia inusta*, *celata*, p. 389, *Ricardovenia mysteriosa*, p. 390, *Pleurystylops glebosus*, p. 394, *Edvardocopeia sinuosa*, *Pseudostylops subquadratus*, p. 395, *Tychostylops marculus*, p. 396, *Ricardolydekkeria prærupta*, *profunda*, *Guilielmofloweria plicata*, p. 397, *Albertogaudrya unica*, p. 399, *Scabellia laticincta*, p. 400, *Edvardotrouessartia sola*, *Astraponotus assymetrum*, p. 401, *Parastrapotherium martiale*, *superabile*, p. 402, *insuperabile*, *variabile*, p. 403, *Henricofilholia lustrata*, *inæquilatera*, *circumdata*, p. 405, *Caroladarvinia pyramidentata*, *Hedralophus bicostatus*, p. 406, *Thomas-huxleya rostrata*, *arctuata*, p. 409, *robusta*, *externa*, p. 410, *Mazschlos-*

seria præterita, p. 413, *Dialophus simus*, *Paginula parca*, p. 415, *Eochalicotherium cretaceum*, *crassidens*, p. 417, *robustum*, *minutum*, p. 418, *Castylops pendens*, *magnificus*, *Acrostylops pungiunculus*, p. 421, *Homalostylops rigeo*, *interlissus*, *Cælostylops crassus*, p. 422, *Pantostylops typus*, *incompletus*, p. 423, *minutus*, *Eostylops diversidens*, *obliquatus*, p. 424, *Entelostylops completus*, *incolumis*, *tripartitus*, *cestius*, p. 425, *Microstylops clarus*, p. 426.

The following new specific names, based upon similar materials, have been associated with generic titles previously published by the same writer:—

† *Argyrohyrax acuticostatus*, *Archæohyrax nesodontoides*, *concentricus*, p. 361, *Acalodus oppositus*, *debilitatus*, *connectus*, *microdon*, p. 365, *Prosotherium quatum*, p. 371, *Proadiantus pungidens*, *gibbus*, *secans*, p. 372, *Euprotogonia patagonica*, *trigonalis*, p. 375, *Dibolodus crassiuspis*, *Lambdaconus mamma*, p. 376, *porcus*, *alius*, p. 377, *Pyrotherium pluteum*, p. 386, *Trigonostylops secundarius*, *integer*, p. 391, *minimus*, *trigonus*, *subtrigonus*, *insumptus*, p. 392, *eximius*, *scabellum*, p. 393, *hemicyclus*, *duplex*, p. 394, *Parastrapotherium martiale*, *superabile*, p. 402, *insuperabile*, *variabile*, p. 403, *Lozocælus obturtus*, p. 404, *Stenogeneum enigmaticum*, *Ancylocælus lentus*, *minor*, p. 407, *Asmodeus circumflexus*, *armatus*, p. 408, *Isotemnus distentus*, *lophiodontoides*, *enecatus*, p. 411, *cuspidatus*, *apicatus*, *consumatus*, *emundatus*, p. 412, *Pleurostylodon similis*, p. 413, *plexus*, *notabilis*, *divisus*, p. 414, *Trimerostephanos coalitus*, p. 415, *coarctatus*, *sigma*, *cuneolus*, *ultimus*, p. 416, *Notostylops escaridus*, *complexus*, *irregularis*, p. 420, *pendens*, p. 421.

The specimens on which the following new generic and specific names are based are regarded by the same writer as indicating a new order "*Protungulata*":—

Caraloameghinia mater, *tenuis*, p. 355.

VII. CETACEA.

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† *Cyriodelphis*, n. g. for *Delphinus sulcatus* Gervais, 1853, ABEL, Denk. Ak. Wien lxxviii, p. 849 (1899); remains of in Italy, DAL PIAZ, Palæontogr. ital. vii, p. 287.

† *Acrodelphis*, n. g. for *Champsodelphis macrognathus* Brandt, 1873, p. 851, *krahuletsi*, n. sp., p. 868, ABEL, t. c. (1899).

Grampus griseus, in Ireland, Irish Natural. x, p. 88, markings on caused by cuttlefish, Ann. Nat. Hist. (7) vii, p. 503, THOMPSON.

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 †*Zeuglodon*, dermal armour, ABEL, op. cit. and Beitr. Pal. Oesterr.-Ung. xiii, p. 299.

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- p. 185 (1900) and P. Soc. Washington xiv, p. 92, THOMAS, Amer. Natural. xxxv, p. 143, and REHN, t. c. p. 147; *D. yucatanensis cozumelæ*, Cozumel Id., MERRIAM, P. Soc. Washington xiv, p. 101, *marsupialis texensis*, Texas, p. 172, *m. tabascensis*, Mexico, p. 173, *richmondi*, Nicaragua, p. 175, ALLEN, Bull. Amer. Mus. xiv, n. sp. & subsp.
- Metachirus nudicaudatus phæurus*, Ecuador, THOMAS, Ann. Nat. Hist. (7) vii, p. 545; *fuscogriseus pallidus*, Orizaba, p. 215, *griseus*, Colombia, p. 217, *nudicaudatus boliviensis*, Bolivia, p. 411, ALLEN, Bull. Amer. Mus. xiv : n. sp. & subsp.
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- Ornithorhynchus*, reproduction, METCALFE, P. Zool. Soc. London 1901, ii, p. 624.

III. AVES.

BY

R. BOWDLER SHARPE, LL.D., &c.

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INTRODUCTION.

The Record of 1901 shews an unusual amount of vitality as regards the ornithological work done in every quarter of the globe, and the foundation of the Australian Ornithologists' Union is a sign of the increasing interest in the history of Australian birds. There is no work or memoir which calls for special notice, the most important event of the year being the completion of the first volume of Dr REICHENOW's "*Vögel Afrikas*."

Mr CHUBB's help in the preparation of the present Record has, as usual, been of the greatest service to me.

I. TITLES.*

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2. ALEXANDER, BOYD. New species of birds from the Gold Coast. Bull. B. O. C. xii, pp. 10 & 11. [*Psittaciiformes*, *Strigiformes*, *Timeliidae*, *Indicatores*, *Muscicapidae*, *Certhiidae*, *Fringillidae*, *Sylviidae*.]
3. —. A new Nightjar from the Gold Coast. T. c. p. 29. [*Caprimulgi*.]
4. ALLEN, J. A. In Memoriam: George Burritt Sennett. Auk xviii, pp. 11-23, pl. ii.
5. —. Republications of descriptions of new species and subspecies of North American Birds. No. ii. T. c. pp. 172-179.
6. —. The question of the Generic Name *Gavia*. T. c. pp. 270, 271. [*Lariiformes*.]
7. ALMÁSY, G. VON. Vorläufiger Bericht ueber eine in Sommer 1900 in das Gouvernement Szemirjetschensk (Russisch-Turkestan) unternommene zoologische Expedition. Aquila viii, pp. 181-187.
8. ANDERSEN, K. Sysselmand H. C. Müller's Haandskrevne Optegnelser om Færøernes Fugle. Vid. Medd. 1901, pp. 217-252.
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12. —. Further Notes from Lleyn, West Carnarvonshire. T. c. pp. 141-150.

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13. ARBEL, L. Notice sur l'Alethe. C.R. Congr. Orn. III, pp. 233-235, pla. iii & iv. [*Accipitriformes*.]
14. ARNOULD, A. Protection des oiseaux utiles a l'Agriculture. Étude des mesures internationales de protection. T. c. pp. 412-420.
15. ARRIGHI, G. Note ed appunti di un cacciatore sui nostri uccelli migratori. Avicula v, pp. 33-36, 74-78, 133-138.
16. ARRIGONI DEGLI ODDI, E. Nota su una piccola raccolta di Uccelli del Museo di Zagabria provenienti dal litorale Dalmato. Atti Ist. Veneto ix, pp. 575-585.
17. —. Bird Notes from Brembana Valley. Zoologist 1901, pp. 1-16.
18. ASHBY, E. A list of Birds collected by the writer in Western Australia during the last fortnight of August, 1901, with notes thereon. Tr. R. Soc. S. Austral. xxv, pp. 132-135.
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23. BACKHOUSE, J. Preliminary Catalogue of the British Bird Collections in the possession of the Yorkshire Philosophical Society. Part I. Rep. Yorksh. Soc. 1899, pp. 1-9: Part II. Op. cit. 1900, pp. 1-14.
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28. BANGS, O. Birds of San Miguel Island, Panama. Auk xviii, pp. 24-32. [*Pici*, *Trochili*, *Tyrannidae*, *Tanagridae*.]
29. —. A new Ground Dove from Western Mexico. T. c. pp. 257 & 258. [*Columbiformes*.]
30. —. On a collection of Birds made by W. W. Brown, Jr., at David and Divala, Chiriqui. T. c. pp. 355-370. [*Galliformes*, *Pici*, *Tyrannidae*, *Pipridae*, *Formicariidae*, *Dendrocolaptidae*.]
31. —. On a collection of Birds from the Liu Kiu Islands. Bull. Mus. Harvard xxxvi, pp. 255-269. [*Lariformes*, *Columbiformes*, *Muscicapidae*, *Paridae*.]
32. —. Description of a new Rice Grackle. P. New England Zool. Club ii, p. 11.
33. —. A new Meadow Lark from South America. T. c. pp. 55 & 56. [*Icteridae*.]
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36. —. A new *Ortalis* from the Archipelago de las Perlas, Bay of Panama. T. c. pp. 61 & 62. [*Galliformes*.]
37. —. A new *Phaethornis* from the Santa Marta Region of Colombia. T. c. pp. 63-65. [*Trochili*.]
38. —. On an apparently unnamed race of *Buteo borealis*. T. c. pp. 67-69. [*Accipitriformes*.]
39. —. Description of a new Woodpecker from Chiriqui. T. c. pp. 99 & 100. [*Pici*.]
40. — & BRADLEE, T. S. The resident Land Birds of Bermuda. Auk xviii, pp. 249-257. [*Columbiformes*, *Vireonidæ*, *Mimidæ*, *Fringillidæ*.]
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44. BARTRAM, E. Anatomische histologische und embryologische Untersuchungen über den Verdauungstraktus von *Eudypetes chrysocome*. Zeitschr. Naturw. lxxiv, pp. 172-236, Tafel III & IV. [*Spheniciformes*.]
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699. —. On a collection of Birds from Deelfontein, Cape Colony. Op. cit. xii. pp. 1 & 2.
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701. —. On a new species of *Picus* from British Guiana. T. c. p. 4. [Pici.]
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- Oreortyx pictus*, egg figured; OATES, t. c. pl. vii, fig. 3: *O. pictus plumiferus*, nesting habits; BARLOW, Condor iii, pp. 158 & 159.
- Euppsychortyx leucopogon*, eggs figured; OATES, Cat. Eggs, pl. vii, figg. 4 & 5.
- Colinus minor*, n. sp., Chiapas, Mexico; NELSON, Auk xviii, p. 47.
- Odontophorus castigatus*, n. sp., Divala, Panama; BANGS, Auk xviii, pp. 556 & 557.

Order TURNICIFORMES.

Turnix fasciata, egg figured; OATES, Cat. Eggs, pl. viii, fig. 4: *T. powelli*, figg. 6-9: *T. lepurana*, fig. 8: *T. velox*, fig. 7: *T. pyrrhothorax*, fig. 12.

Order PTEROCLIDIFORMES.

Notes on the systematic position; SHUFELDT, Amer. Natural. xxxv, pp. 10-16.

Syrrhaptes tibetanus, egg figured; OATES, Cat. Eggs, pl. viii, fig. 13.

Pteroclidurus alchatus, egg figured; OATES, t. c. pl. viii, fig. 11: *P. namaquus*, figg. 5 & 10.

Pteroclidurus exustus, note on; WITHERBY, Ibis 1901, pp. 275 & 276: *P. exustus somalicus* Hartert and *P. exustus orientalis* Hartert, are not entitled to subspecific rank; GRANT, Ibis 1901, pp. 298 & 299: *Pterocles senegallus*, egg described; BULKLEY, J. Bombay Soc. xiii, pp. 704 & 705.

Order COLUMBIFORMES.

Intestinal tract; see MITCHELL (501).

Principal Osteological characters of the United States' *Columbidae*; SHUFELDT, J. Morphol. xvii, pp. 506 & 507.

Notes on Papuan Birds: *Columba*; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 102-135, pl. iv.

Sphenocercus medioximus, n. sp., Ishigaki, Liu Kiu Is.; BANGS, Bull. Mus. Harvard xxxvi, pp. 261 & 262.

Ptilinopus. Review of the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 102-108: *P. biroi* Madarász = *P. iozonus*, iid. t. c. p. 104: *P. gestroi kaporensis*, n. subsp., Kapaur, New Guinea; iid. t. c. p. 105: *P. huttoni*, figured; MARTORELLI, C.R. Congr. Orn. iii, pp. 225-227, pl. i.

Megaloprepia. Review of the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 110 & 111.

Carpophaga. Review of the Papuan species; iid. t. c. pp. 111-116: *C. zoea occidentalis* Meyer, not distinct from *C. zoea*; iid. t. c. p. 112.

Myristicivora. Review of the Papuan species; iid. t. c. viii, pp. 116 & 117. *Gymnophaps* = *Columba*; ROTHSCHILD & HARTERT, Nov. Zool. viii, p. 117.

Columba livia, skull figured; SHUFELDT, J. Morphol. xvii, pl. a.

Columba livia schimperi apud Lorenz & Hellmayr = *C. intermedia* Bp.; GRANT, Ibis 1901, p. 521: *C. mada*, figured; ROTHSCHILD & HARTERT, Nov. Zool. viii, pl. iv: *C. gurnea longipennis*, n. subsp., E. Africa, REICHENOW, Vög. Afr. i, pl. 2, p. 402.

Columba domestica. On various races of Pigeons; see VACQUEZ, BRESCHET, DENEUVE.

C. picazuro, in Matto Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 14: *C. arquatrix*, in Somali-land; SHARPE, P. Zool. Soc. London 1901, Vol. ii, p. 314: *C. palumbus*, scarcity on migration in England in 1900; PIGOTT, Bull. B. O. C. xi, p. 56, abundance in Holland at the same season; BLAAUW, t. c. p. 56: nesting on the ground; BUCHAN-HEPBURN, Ann. Scott. Nat. Hist. 1901, p. 236: *C. albigularis* and its allies; ROTHSCHILD & HARTERT, Nov. Zool. viii, p. 118.

Macropygia. Review of the genus; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 118-126: *M. leptogrammica*, auct. is *M. unchall* (Wagler); iid. t. c. p. 119: *M. goldiei* = *M. cinereiceps*; iid. t. c. p. 125.

Reinwardtana. Review of the species; iid. t. c. pp. 126-128.

Ectopistes migratorius, note on its decrease; WARD, Auk xviii, pp. 191 & 192.

- Turtur turtur*, figured; HERMAN, *Aquila* viii, Tab. vi, fig. 1: *T. risorius*, origin of the domestic race believed to be *T. douraca*; OUSTALET, C.R. Congr. Orn. iii, pp. 259-266: *T. semitorquatus*, in Somali-land; SHARPE, P. Zool. Soc. London 1901, vol. ii, p. 315: *T. ambiguus*, note on; WITHERBY, *Ibis* 1901, pp. 266 & 267: *T. reichenowi*, n. sp., Juba River, N. E. Africa; ERLANGER, *Ornith. Monber.* ix, pp. 182 & 183.
- Columbigallina passerina*, in Virginia; SHUFELDT, *Auk* xviii, p. 192: *C. bermudiana*, n. sp., Bermuda; BANGS & BRADLEE, *Auk* xviii, pp. 250 & 251: *C. rufipennis eluta*, n. subsp., Sinaloa, Western Mexico; BANGS, *Auk* xviii, pp. 257 & 258.
- Chalcopelia chalcospilos*, distinct from *Chalcopelia afra*; ERLANGER, *Ornith. Monber.* ix, p. 183.
- Chalcophaps*. Review of the species; ROTHSCHILD & HARTERT, *Nov. Zool.* viii, pp. 128-130: *C. sanghirensis* and *C. natalis* are subspecies of *C. indica*; iid. l. c.: *C. indica*, eggs figured; OATES, *Cat. Eggs*, pl. viii, figg. 2 & 3.
- Hemiphysa*. Notes on the species; ROTHSCHILD & HARTERT, *Nov. Zool.* viii, p. 130.
- Leptoptila battyi*, n. sp., Coiba Isl., Panama; ROTHSCHILD, *Bull. B. O. C.* xii, pp. 33 & 34.
- Geotrygon montana*, egg figured; OATES, *Cat. Eggs*, pl. viii, fig. 1.
- Phlegænas*. Review of the Papuan species; ROTHSCHILD & HARTERT, *Nov. Zool.* viii, pp. 131-
- Alopecoenas hoedti*, figured; FINSCH, *Notes Leyden Mus.* xxii, pl. 5.
- Leucosarcia picata*, young described; HALL, *Victorian Natural.* xviii, p. 22.
- Trugon*. Review of the species; ROTHSCHILD & HARTERT, *Nov. Zool.* viii, p. 132.
- Otidiphaps*. Review of the species; iid. t. c. pp. 132 & 133.
- Calenas*. Review of the species; iid. t. c. p. 133.
- Goura*. Review of the species; iid. t. c. pp. 134 & 135: *G. cinerea*, a pale variety of *G. coronata*; iid. t. c. p. 134.
- Didunculus strigirostris*, notes on the Osteology; SHUFELDT, *J. Morphol.* xvii, pp. 508-510, pl. B.

Order OPISTHOCOMIFORMES.

Intestinal tract; see MITCHELL (501).

Order RALLIFORMES.

- Review of the Papuan species of *Rallidae*; ROTHSCHILD & HARTERT, *Nov. Zool.* viii, pp. 140-142.
- Rallus virginianus*, egg figured; OATES, *Cat. Eggs*, pl. ix, fig. 1: *R. antarcticus*, fig. 4.
- Aramides albiventris*, egg figured; OATES, t. c. pl. ix, fig. 9.
- Rallina tricolor victa*, n. subsp., Tenimber Islands; HARTERT, *Nov. Zool.* viii, p. 175.
- Porzana maruetta*, in East Lothian in August; EVANS, *Ann. Scott. Nat. Hist.* 1901, pp. 236 & 237: *P. carolina*, in Tiree; LOBT PHILLIPS, *Bull. B. O. C.* xii, p. 26: egg figured; OATES, *Cat. Eggs*, pl. ix, fig. 2.
- Ortygometra pusilla*, in Madeira; TSCHUDI, *J. Ornith.* xii, p. 228.
- Oreiscus jamaicensis*, egg figured; OATES, *Cat. Eggs*, pl. ix, fig. 8: *C. albigularis*, pl. x, fig. 2: *C. cayennensis*, pl. x, fig. 1.
- Amaurornis phaeicura*, egg figured; OATES, t. c. pl. ix, fig. 5.
- Neocrex uniformis*, n. sp., N. W. Ecuador; HARTERT, *Nov. Zool.* viii, p. 369.
- Pareudiastes pacificus*, egg figured; OATES, *Cat. Eggs*, pl. ix, fig. 6.

- Porphyriornis nesiotis*, egg figured; OATES, t. c. pl. ix, fig. 7.
Gallinula chloropus, figured; HERMAN, Aquila viii, Tab. vii, fig. 2: nesting habits; PIKE, Zoologist 1901, pp. 17-20; BONHOTE, t. c. pp. 71 & 72: *G. galeata*, egg figured; OATES, Cat. Eggs, pl. ix, fig. 3.
Porphyriops melanops, egg figured; OATES, t. c. pl. x, fig. 4.
Gallicrex cinerea, egg figured; OATES, t. c. pl. x, fig. 6.
Porphyriola martinicana, in Massachusetts in the breeding season; FARLEY, Auk xviii, p. 190.
Porphyrio poliocephalus, egg figured; OATES, Cat. Eggs, pl. x, fig. 3: *P. stanleyi*, note on; FORBES, Bull. Liverp. Mus. iii, pp. 62-68.
Fulica cristata, in Nyasaland; SHELLEY, Ibis 1901, p. 175: *F. armillata*, egg figured; OATES, Cat. Eggs, pl. x, fig. 8: *F. rufifrons*, fig. 7: *F. leucoptera*, fig. 5.

Order PODICIPEDIFORMES.

See EIMER & FICKERT (209).

- Podiceps capensis*, egg figured; OATES, Cat. Eggs, pl. xi, fig. 2: *P. americanus*, fig. 8: *P. auritus*, in Wigtownshire; MAXWELL, Ann. Scott. Nat. Hist. 1901, pp. 117 & 118: *P. cristatus*, observations of the habits; SELOUS, Zoologist 1901, pp. 161-183, 339-350: in Assam; BAKER, J. Bombay Soc. xiii, p. 535.
Æchmophorus major, egg figured; OATES, Cat. Eggs, pl. xi, fig. 9.

Order COLYMBIFORMES.

- Colymbus pacificus*, egg figured; OATES, Cat. Eggs, pl. xi, fig. 5.

Order SPHENISCIFORMES.

- Intestinal tract; see MITCHELL (501).
 Osteology of the Penguins; SHUFELDT, J. Anat. Physiol. (2) xv, pp. 390-404, pl. xxxviii.
Eudyptes chrysocome, anatomy, histology, and embryology of; BARTRAM, Zeitschr. Naturw. 74, pp. 172-236, Tafel III & IV.

Order PROCELLARIIFORMES.

- Intestinal tract; see MITCHELL (501).
Halocyptena microsoma, egg figured; OATES, Cat. Eggs, pl. xi, fig. 1.
Oceanodroma castro, egg figured; OATES, t. c. pl. xi, fig. 4: *O. socorroensis*, fig. 6: *O. melania*, fig. 3.
Oceanites oceanica, egg figured; OATES, t. c. pl. xi, fig. 7.
Fregata melanogaster, egg figured; OATES, t. c. pl. xii, fig. 2: *F. albicularis*, fig. 1.
Puffinus major, notes on; SAUNDERS, Ann. Scott. Nat. Hist. 1901, pp. 15-18: *P. yelkouan*, egg figured; OATES, Cat. Eggs, pl. xii, fig. 3: *P. subalaris*, pl. xii, fig. 4: *P. obscurus bailloni*, third occurrence in British waters; BUTTERFIELD, Bull. B. O. C. xi, p. 45: *P. auduboni*, on the Virginian Coast; RIVES, Auk xviii, p. 189.
Fulmarus glacialis, breeding at Cape Wrath; SAUNDERS, Ann. Scott. Nat. Hist. 1901, p. 50: in Germany; LE ROI, Ornith. Monber. ix, p. 53: note on; WIGLESWORTH, Tr. Liverp. biol. Soc. xv, pp. 85-91.
Pelecanoides garnoti, egg figured; OATES, Cat. Eggs, pl. xii, fig. 8.
Diomedea regia, on the coast of La Plata; BERG, Comun. Mus. Buenos Aires i, pp. 284 & 285.

Order ALCIFORMES.

See EIMER & FICKERT (209).

Notes on the Osteology and systematic position; SHUFELDT, Amer. Natural. xxxv, pp. 541-551 cum fig.

Plautus impennis, exhibition of an egg; BIDWELL, Bull. B. O. C. xi, p. 49.

Alca torda, notes on; BRUSINA, Boll. Soc. zool. Ital. (2) ii, pp. 213-225.

Uria troile (L.) var. *rhingvia* (Brünn.), figured; SWENANDER, Bih. Svenska Ak. 26, Afd. iv, No. 3, Taf. II: *U. brunnichi*, figured; id. t. c. pl. 3: *U. lomvia*, in Lewis and Jefferson Counties, New York; MILLER, Auk xviii, p. 188.

Mancalla, n. g. Type *M. californiensis*, n. sp. [Fossil] Miocene of California; LUCAS, P. U. S. Mus. xxiv, No. 1245, pp. 133 & 134.

Pseuduria nowi, egg figured; OATES, Cat. Eggs, pl. xii, fig. 6.

Ptychorhamphus aleuticus, egg figured; OATES, t. c. pl. xii, fig. 5.

Simorhynchus pusillus, egg figured; OATES, t. c. pl. xii, fig. 7.

Cyclorhynchus psittaculus, in California; LOOMIS, Auk xviii, p. 104.

Pratercula arctica, breeding on the Shiant Islands; WORKMAN, Zoologist 1901, pp. 429 & 430.

Order LARIFORMES.

See EIMER & FICKERT (209).

Morphology of the Palate; see PYCRAFT (571).

Hydrochelidon surinamensis, egg figured; OATES, Cat. Eggs, pl. xiii, fig. 5.

Phaethusa magnirostris, egg figured; OATES, t. c. pl. xiii, fig. 8.

Seena seena, egg figured; OATES, t. c. pl. xiii, fig. 7.

Sterna melanogaster, egg figured; OATES, t. c. pl. xiii, fig. 6, *S. albigata*, fig. 1, *S. virgata*, fig. 3, *S. vittata*, fig. 2, *S. forsteri*, fig. 4, *S. hirundinacea*, fig. 9, *S. longipennis*, pl. xiv, fig. 4, *S. albigena*, fig. 5, *S. masima*, fig. 7, *S. frontalis*, fig. 6, *S. aleutica*, fig. 9, *S. lunata*, fig. 8, *S. nereis*, fig. 1, *S. saundersi*, fig. 2, *S. antillarum*, fig. 3, *S. superciliaris*, pl. xv, fig. 1, *S. melanauchen*, fig. 3, *S. trudeaui*, fig. 7.

Sterna hirundo, its moults and plumages; DWIGHT, Auk xviii, pp. 54-56: *S. melanauchen*, *S. dougalli* and *S. sinensis*, breeding on Ree Isl., Tiandoe group; HARTERT, Nov. Zool. viii, p. 98: *S. cantiaea* on the island of Jordsand (near Sylt); HARTLAUB, Ornith. Monber. ix, p. 155: *S. bergii boreotis*, n. subsp., Liu Kiu Is.; BANGS, Bull. Mus. Harvard xxxvi, pp. 256 & 257: *S. fuliginosa* near Manchester; SAUNDERS, Bull. B. O. C. xii, p. 26: *S. nereis*, nestling, four days old, described; HALL, Victorian Natural. xviii, pp. 24 & 25: *S. minuta*, breeding at Barra; MACGILLIVRAY, Ann. Scott. Nat. Hist. 1901, p. 237.

Procelsterna cerulea, egg figured; OATES, Cat. Eggs, pl. xv, fig. 2.

Anous ridgwayi, egg figured; OATES, t. c. pl. xv, fig. 6: *A. galapagensis*, fig. 5: *A. pullus*, n. sp., Liu Kiu Is.; BANGS, Bull. Mus. Harvard xxxvi, p. 258: *A. hawaiiensis*, notes on; HENSHAW, Ibis 1901, pp. 196-200.

Micranous diameus, n. sp., Cocos and Clipperton Islands; HELLER & SNODGRASS, Condor iii, pp. 76 & 77.

Rhynchops nigra, egg figured; OATES, Cat. Eggs, pl. xv, fig. 8: *R. melanura*, fig. 9: *R. albigollis*, fig. 4.

Xema sabinei, its changes of plumage; BUREAU, C. R. Congr. Orn. III, pp. 285-306: egg figured; OATES, Cat. Eggs, pl. xviii, fig. 3: in Germany; LE ROI, Ornith. Monber. ix, p. 52: in Wisconsin; HOLLISTER, Auk xviii, p. 392: in New Mexico; BRITWELL, Auk xviii, p. 113: changes of plumage; BUREAU, C. R. Congr. Orn. III, p. 27.

Creagrus furcatus, egg figured; OATES, Cat. Eggs, pl. xvi, fig. 3.

Gavia Gm. = *Larus* Linn.; ALLEN, Auk xviii, pp. 270 & 271.

- Larus philadelphia*, its southern limit; LOOMIS, Auk xviii, p. 104: *L. argentatus*, notes on the moults and plumages; DWIGHT, Auk xviii, pp. 56-63: *L. cirrhocephalus*, egg figured; OATES, Cat. Eggs, pl. xvi, fig. 5: *L. maculipennis*, fig. 1, *L. glaucoptes*, fig. 2, *L. hemprichi*, fig. 4, *L. crassirostris*, pl. xvii, fig. 4, *L. hartlaubii*, fig. 2, *L. affinis*, pl. xviii, fig. 4, *L. californicus*, fig. 2, *L. delawarensis*, pl. xvii, fig. 5, *L. brachyrhynchus*, fig. 1, *L. ridibundus* devouring grasshoppers; CHERNEL, Aquila viii, p. 296: its changes of plumage; BUREAU, C.R. Congr. Orn. iii, p. 27: blue eggs of; C. E. PEARSON, Bull. B. O. C. xi, p. 71: *L. audouini*, on the Island of Elba; DAMIANI, Avicula v, pp. 1-3: *L. canus*, notes on; DUTHIE, Tr. Perthshire Soc. iii, pp. 108-110.
- Leucophorus scoresbyi*, egg figured; OATES, Cat. Eggs, pl. xviii, fig. 1.
- Pagophila eburnea*, in Northamptonshire; APLIN, Ibis 1901, p. 517.
- Rissa tridactyla*, skull figured; PYCRAFT, J. Linn. Soc. xxviii, pl. 31, fig. 4: in Heligoland in June; HARTLAUB, Ornith. Monber. ix, p. 121: *R. brevirostris*, egg figured; OATES, Cat. Eggs, pl. xvii, fig. 3.
- Megalestris antarctica*, egg figured; OATES, t. c. pl. xviii, fig. 5.
- Stercorarius pomatorhinus* in the Kurische Nehrung; THIENEMANN, Ornith. Monber. ix, p. 152.

Order CHARADRIIFORMES.

- Intestinal tract; see MITCHELL (501).
- Chionis minor*, the nestling described; STUDER, C.R. Congr. Orn. iii, pp. 275 & 276.
- Review of the Papuan *Limicola*; ROTHSCILD & HARTERT, Nov. Zool. viii, pp. 142 & 143.
- Hamatopus palliatus*, in Massachusetts; BREWSTER, Auk xviii, p. 136.
- Belonopterus chilensis*, nesting habits; OUSTALET, C.R. Congr. Orn. iii, p. 196.
- Vanellus vanellus*, in the Bahamas; FLEMING, Auk xviii, p. 272: notes on; SELOUS, Zoologist 1901, pp. 339-350.
- Charadrius pluvialis*, evolution of pattern in feathers; BONHOTE, P. Zool. Soc. London 1901, vol. ii, pl. xx, fig. 7: *C. dominicus*, in Hobson Bay, Australia, on June 15th; HALL, Victorian Natural. xviii, p. 68.
- Eudromia morinellus*, in Merionethshire; APLIN, Ibis 1901, pp. 517 & 518.
- Aegialitis hiaticola*, breeding in Middlesex, within London Postal District; LODGE, Zoologist 1901, pp. 389 & 390: *A. dubia*, in Somaliland; SHARPE, P. Zool. Soc. London 1901, Vol. ii, p. 314: *A. pallida* on the Benue River; HARTERT, Nov. Zool. viii, p. 354.
- Numenius arguata*, an abnormal development of bill; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. ix, pp. 18 & 19 [cum fig.].
- Limosa lapponica*, at Durban, Natal; W. L. SCLATER, Ibis 1901, p. 518.
- Macrorhamphus*, note on the genus; HOWE, Auk xviii, p. 272: *M. griseus* and *M. griseus scolopaceus*, notes on the migration and geographical distribution; id. t. c. pp. 157-162: *M. taczanowskii*, Trusan river, Sarawak; SHELFORD, Ibis 1901, p. 152.
- Totanus ochropus*, in Nyasaland; SHELLEY, Ibis 1901, p. 175: *T. glareola*, in Co. Dublin; WILLIAMS, Zoologist 1901, p. 390.
- Tringa solitarius cinnamomeus*, Auk 1897, p. 172, refers to *Actitis macularia*; DAWSON, Auk xviii, p. 272.
- Heteropygius maculata*, in Matto Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 15: in Hawaii; HENSHAW, Auk xviii, p. 202: eggs of; NOBLE, Bull. B. O. C. xi, p. 55: sexual difference in size; HOWE, Auk xviii, p. 107: *H. bairdi*, in Sussex, England; BUTTERFIELD, Auk xviii, p. 190; NICOLL, Zoologist 1901, pp. 31 & 32.
- Tringa subarquata*, a crested specimen; VAN KEMPEN, C.R. Congr. Orn. iii, p. 186.

- Pelidna alpina*, notes on ; BACKHOUSE, Zoologist 1901, pp. 91-94 ; BONHOTE, t. c. pp. 185-187 ; MACPHERSON, t. c. pp. 187 & 188.
- Limicola platyrhyncha*, in Kent ; EDWARDS, Zoologist 1901, p. 390 : in Sussex ; BUTTERFIELD, t. c. p. 390.
- Gallinago caelestis* and *G. gallinula*, anatomical differences ; BEDDARD, P. Zool. Soc. London 1901, Vol. ii, pp. 596-602, text-figg. 64-69 : *G. gallinula* and *Scolopax rusticula* nesting in the Department of 'l'Oise' ; COCU, C.R. Congr. Orn. III, p. 284.
- Philohela minor*, its love song ; SMITH, Ottawa Natural. xv, p. 129.
- Rhynchœa*, anatomy and systematic position ; BEDDARD, P. Zool. Soc. London 1901, Vol. ii, pp. 587-596, text-figg. 56-63.
- Crymophilus fulicarius*, on the coast of South Carolina ; WAYNE, Auk xviii, p. 271 : life-history ; PATTEN, Irish Natural x, pp. 53-67, pl. 3, figg. 1-6.
- Phalaropus hyperboreus*, in North Wales ; FORREST, Zoologist 1901, p. 428 : *P. lobatus* on the Balaton Lake, Hungary ; GAAL DE GYULA, Aquila viii, pp. 295 & 296.
- Glareola nuchalis*, in Nyasaland ; SHELLEY, Ibis 1901, p. 175.
- Oedinenus crepitans*, a crested specimen ; VAN KEMPEN, C.R. Congr. Orn. III, p. 186.
- Tetrax tetrax*, in Derbyshire ; FOX, Zoologist 1901, p. 270 : Distribution in France ; TERNIER, C.R. Congr. Orn. III, pp. 277-283.

Order GRUIFORMES.

- Intestinal tract ; see MITCHELL (501).
- Anatomy of Gruiform Birds ; MITCHELL, P. Zool. Soc. London 1901, vol. ii, pp. 629-655, text-figg. 70-85.
- Grus communis*, notes on the breeding in East Anglia ; SOUTHWELL, Tr. Norfolk Soc. vii, pp. 160-170 : on some bones found in Norfolk ; NEWTON, t. c. pp. 158 & 159 : *G. mexicana*, in New Hampshire ; BREWSTER, Auk xviii, p. 274 : *G. australis*, breeding in England ; ASTLEY, Avicult. Mag. viii, pp. 1-3, pl. i.
- Anthropoides virgo*, in Allier ; ROCQUINY-ADANSON, C.R. Congr. Orn. III, p. 236 : notes on ; LASCELLES, Avicult. Mag. vii, pp. 89-92 cum tab.
- Rhinocetus jubatus*, Morphology of the Nestling and the systematic position of the genus ; BURCKHARDT, Acta Ac. German. lxxvii, pp. 251-298, Taf. xi, figg. 1-6 in text : young figured ; id. op. cit. lxxix, pp. 9-11, Tab. II : Nestling described and figured ; id. C.R. Congr. Orn. III, pp. 267-273.
- Poophia crepitans*, nestling figured ; BURCKHARDT, Acta Ac. German. lxxix, pp. 3-9, Tab. I.

Order ARDEIFORMES.

- Intestinal tract ; see MITCHELL (501).
- Herodiones of Central America ; see GODMAN, Biol. Centr.-Amer., Aves iii, pp. 153-192.
- Osteology of the *Herodiones* ; SHUFELDT, Ann. Carnegie Mus. i, pp. 158-249, pls. v & vi, figg. in text 1-43.
- Carphibis spinicollis*, notes on the nesting ; LE SOUËF, Ibis 1901, pp. 185-190, figg. 18 & 19.
- Comatibis eremita* breeding in W. Morocco ; HARTERT, Bull. B. O. C. xi, p. 64.
- Theristicus melanopsis* has not a throat-wattle like *T. caudatus* ; BLAAUW, Bull. B. O. C. xi, p. 55.
- Plegadis autumnalis*, at Washington, D. C. ; DANIEL, Auk xviii, p. 271 : *P. guarauna*, osteology of ; SHUFELDT, Ann. Carnegie Mus. i, pp. 229-241 : *P. falcinellus*, skeleton figured ; id. t. c. pl. v.
- Guara alba* and *G. ordii*, osteology of ; SHUFELDT, t. c. pp. 229-241.

- Platalea leucorodia*, at Great Yarmouth; PATTERSON, Zoologist 1901, p. 269.
- Ajaja ajaja*, notes on the Osteology; SHUFELDT, Ann. Carnegie Mus. i, pp. 241-249, figg. 38-41.
- Tantalus loculator*, osteology of; SHUFELDT, t. c. pp. 215-229, pl. vi.
- Ciconia ciconia*, in Finland; POUSAR, Ornith. Jahrb. xii, pp. 111 & 112: in East Thuringia; KÖPERT, Ornith. Monber. ix, pp. 49-51: *C. alba*, distribution in France; HECHT, Bull. Soc. zool. France xxvi, pp. 156-165.
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- Nycticorax griseus*, evolution of pattern in feathers; BONHOTE, P. Zool. Soc. London 1901, vol. ii, pl. xix, fig. 14.
- Botaurus neoxenus*, note on; KELL, Ottawa Natural. xv, pp. 67-70.
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Order PALAMEDEIFORMES.

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Order PHENICOPTERIFORMES.

- Intestinal tract; see MITCHELL (501).
- Phenicopterus ruber*, osteology of; SHUFELDT, Ann. Carnegie Mus. i, pp. 295-324, pls. xi-xiv.

Order ANSERIFORMES.

- See EIMER & FICKERT (209).
- Intestinal tract; see MITCHELL (501).
- Anatida*, notes on the Structure and Function of the Tracheal Bulb in the males; FINN, J. Asiat. Soc. Bengal (2) lxi, pp. 147-149.
- Cygnus*, notes on the species; PACINI, Avicula v, pp. 23-26.
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- Nettion coromandelianus*, notes on; FINN, Avicult. Mag. vii, pp. 129-132.
- Chen hyperboreus*, eggs of; NOBLE, Bull. B. O. C. xi, p. 54: *C. rossi*, eggs of; BLAAUW, t. c. p. 55.

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- Alopochen aegyptiaca* × *Casarca casarca*; PIGOTT, Bull. B. O. C. xii, p. 71.
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- Mareca penelope*, breeding in Ireland; COTTNEY, Zoologist 1901, p. 269: in Massachusetts; BREWSTER, Auk xviii, p. 135: *M. americana*, nesting habits; BENT, Auk xviii, pp. 335 & 336, pl. v, fig. 2, pl. vi, figg. 1 & 2: breeding in Iceland; COBURN, Bull. B. O. C. xii, pp. 14 & 15: id. Zoologist 1901, p. 411.
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- Dafila acuta*, in Southern Shetland in autumn; CLARKE & LAIDLAW, Ann. Scott. Nat. Hist. 1901, p. 8: in Caithness in August; BUCKLEY, t. c. p. 236: *D. acuta americana*, in the Marshall Islands; REICHENOW, Ornith. Monber. ix, p. 17: *D. acuta* × *Anas boscas*, figured; MARTORELLI, Atti Soc. Ital. xl, Tav. I, fig. 2.
- Spatula clypeata*, figured; HERMAN, Aquila viii, Tab. VII, fig. 1.
- Aythya baeri*, near Tring; N. C. ROTHSCHILD, Bull. B. O. C. xii, p. 25.
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- Fuligula cristata*, in Kuching, Sarawak; SHELFORD, Ibis 1901, p. 152.
- Clangula glaucion* and *C. islandica*, figured (heads); SLATER, B. Iceland, pl. to title-page.
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- Mergus albellus*, in Shetland; HENDERSON, Ann. Scott. Nat. Hist. 1901, p. 181.
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Order PELECANIFORMES.

- Steganopodes; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 136-158.
- Phalacrocorax mexicanus*, in Colorado; FELGER, Auk xviii, p. 189: *P. ranfurlyi*, n. sp., Bounty Isl., No. 3; GRANT, Bull. B. O. C. xi, pp. 66 & 67: *P. melanogenis* (Blyth) from Crozette Island is probably *P. verrucosus*; FINN, J. Asiat. Soc. Bengal lxi, p. 143.
- Sula nesiotis*, n. sp., Clipperton Island; HELLER & SNODGRASS, Condor iii, pp. 75 & 76.
- Phaethon americanus*, in the Hawaiian Islands; HENSHAW, Auk xviii, p. 105.

Order CATHARTIDIFORMES.

Gymnogyps Less. has many years priority over *Pseudogyps* Sharpe :
RICHMOND, Condor iii, p. 49.

Order ACCIPITRIFORMES.

Intestinal tract; see MITCHELL '501.

Zur Entwicklungsgeschichte des Schädels einiger Tagraubvögel : CHON-
JAKOFF, Anat. Anz. xix, pp. 135-140, figg. 1-3.

Necrocyrtus monachus, in Somaliland; SHARPE, P. Zool. Soc. London 1901,
vol. ii, p. 313.

Circus macrurus, migration in the Kurische Nehrung : TRIEDEMANN,
Ornith. Monber. ix, pp. 152-154 : in various parts of Germany ;
WISTENI, t. c. pp. 155 & 156, 165 : *C. pallidus*, migration; LINDNER,
Ornith. Monber. ix, p. 169 : in the Fallstein district, N. Harz
Mountains; id. Ornith. Monber. Schutze xxvi.

Microctes amarus, figured; GODMAN, Biol. Centr.-Amer. Aves iii, p. lxx :
M. mirandolae, figured; id. t. c. pl. lxiv.

Astur woodfordi = *A. albugularis* : ROTHSCILD & HARTERT, Nov. Zool.
viii, pp. 379 & 380 : *A. holomelas* = *A. versicolor*, iid. t. c. p. 380 :
A. shobe = *A. pulchellus*; iid. t. c. p. 380 : *A. dampieri* = *A. atorynes* ;
iid. t. c. pp. 381.

Accipiter nius, supposed occurrence in Cape Colony : SCLATER, Bull.
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storff, n. sp., Sardinia : KLEINSCHMIDT, Ornith. Monber. ix, p. 105.

A. sharpei, n. sp. [*A. hartlaubii*, auct. nec Cass.] REICHENOW, Vog. Afrika,
i, pl. 2, p. 564.

Buteo desertorum, in Silesia; KOLLBRAT, Ornith. Monber. ix, pp. 51 & 52 :
B. solitaria, at sea; HENSHAW, Auk xviii, p. 163 : *B. borealis*
umbrius, n. subsp., Manatee Co., Florida : EASON, P. New England
Zool. Club ii, pp. 65 & 69 : *B. lineatus ricketsi* in the young; EASON,
Auk xviii, pp. 192 & 193 : *B. albertinus*, note on the nesting in
Arizona; BROWN, Auk xviii, pp. 392 & 393.

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pp. 12 & 13.

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A. bifasciata and allies. FISCH, Notes Leyden Mus. xiii, pp. 129-133.

Archibuteo hemipterus, figured; SCHALOW, J. Ornith. 1901, pp. 421-427,
Taf. III : *A. holdereri*, n. sp. [*A. atrophistatus* Berez. & Bianchi, nec
Hodg.] Northern China, id. t. c.

Lophotriorchis lucani, in Nyasaland : SHELLEY, Ibis 1901, p. 564.

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p. 354.

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Baza. Notes on *B. rubricapitata* and its subspecies; ROTHSCILD & HARTERT,
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1901, pp. 224 & 225.

Falco sp. 'Laetbe', on its identification; ARBEZ, C.R. Congr. Orn. III,
pp. 233-235, pls. iii & iv : *F. peregrinus*, in W. Java; HARTERT, Nov.
Zool. viii, p. 49 : *F. severus*, *F. indicus*, and *F. papuanus*, notes on ;
HARTERT, Nov. Zool. viii, p. 50 : *F. deindecurus*, figured; GODMAN,
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Falco Hierofulco und die Stellung des ungarischen Würfalken in

demselben; *Aquila* viii, pp. 1-48, Tab. I-III: *Falco islandus* and allies, *F. gyrfalco*, *F. uralensis*, *F. sacer* (Tab. I, fig. 1), *F. mexicanus*, *F. feldeggii* (Tab. I, fig. 2), *F. erlangeri*, n. sp., Tunis (p. 33, Tab. I, fig. 3), *F. tanypterus*, *F. biarmicus*, *F. juggur*, id. t. c. pp. 1-48, Tab. I-III.

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Pandion haliaëtus, at Rye Harbour; NICOLL, Zoologist 1901, p. 427: in Hampshire; CORBIN, t. c. pp. 427 & 428.

Order STRIGIFORMES.

Intestinal tract; see MITCHELL (501).

Asio otus canariensis, n. subsp., Canary Islands; MADARÁSZ, Ornith. Monber. 1901, p. 54. Cf. HARTERT, Nov. Zool. viii, p. 329: *A. stygius*, in Matto Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 12: *A. accipitrinus*, at sea; HENSHAW, Auk xviii, p. 164.

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Pseudopteryx solomonensis, n. sp., Isabel Isl. Solomon Archipelago; HARTERT, Bull. B. O. C. xii, p. 25.

Pulsatrix pulsatix, distinct from *P. perspicillata*; *P. sharpei*, n. sp., E. Brazil; BERLEPSCH, Bull. B. O. C. xii, pp. 4-7.

Scops scops, near Broadstairs, Kent; INGRAM, t. c. p. 39.

S. giu, evolution of pattern in feathers; BONHOTE, P. Zool. Soc. London 1901, Vol. ii, pl. xx, fig. 6: *S. cypria*, n. sp., Cyprus; MADARÁSZ, Termes. Fuzetek xxiv, p. 272: *S. capensis*, in Nyasaland; SHELLEY, Ibis 1901, p. 174: *S. holerythra*, n. sp., Cameroons; SHARPE, Bull. B. O. C. xii, p. 3.

Pisorhina albiventris (Sharpe) = *P. menadensis* (Quoy & Gaim.); FINSCH, Notes Leyden Mus. xxii, p. 244.

Megascops brasiliensis, auct. (nec Gm.) should be called *M. choliba* (Vieill.). Notes on *M. sanctacatarinae*, *M. decussata*, *M. usta* (= *M. watsoni*); BERLEPSCH, Bull. B. O. C. xii, pp. 8 & 9.

Ninox boobook and *N. connivens*, young described; HALL, Victorian Natural. xviii, pp. 19 & 20.

Scotiapteryx cinerea, in Wyoming; BOND, Auk xviii, p. 107.

Gisella iheringi, probably = *G. harrii*; BERLEPSCH, Bull. B. O. C. xii, pp. 7 & 8.

Cryptoglaux, nomen emend. pro *Nyctala* Brehm nec Bowditch; RICHMOND, Auk xviii, p. 193.

Nyctala acadica scotæ, n. subsp., Queen Charlotte Islands; OSGOOD, Bull. U. S. Dep. Agric. Biol. No. 21, pp. 43 & 44.

Athene chiaradia, n. sp., from Udine, Italy; GIGLIOLI, C.R. Congr. Orn. III, pp. 237-242: in Friaul; VALLON, Ornith. Jahrb. xii, pp. 217-220.

Glaucidium passerinum, notes on the eggs; REISER, Ornith. Monber. ix, pp. 177-181: *G. palmarum*, n. sp., Tepic, W. Mexico; NELSON, Auk xviii, p. 46: *G. ferox* (Vieill.) should be called *G. brasiliense* (Gm.); BERLEPSCH, Bull. B. O. C. xii, pp. 8 & 9: *G. albiventer*, n. sp., Gold Coast Hinterland; ALEXANDER, Bull. B. O. C. xii, p. 10.

Sub-order CORACIÆ.

Eurystomus neohanoveranus, n. sp., New Hanover; HARTERT, Nov. Zool. viii, p. 185, note.

Sub-order HALCYONES.

Anatomy of, with special reference to the conditions of the wing known as Eutaxy and Diastataxy; MITCHELL, Ibis 1901, pp. 97-128, pla. iv & v, figg. in text, 4-17.

Review of the Papuan species of Kingfishers; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 143-162.

Ceryle continentalis Hartert = *C. guttulata* Stejn.; HARTERT, t. c. p. 88.

C. sharpei, on the Benué River; id. t. c. pp. 348 & 349: *C. alcyon*, in Holland; SNOUCKAERT VAN SCHAUBURG, Aquila viii, p. 194.

Alcedo ispida, figured; HERMAN, t. c. Tab. v, fig. 1: abnormal nesting places; REBOUSSIN, C.R. Congr. Orn. III, p. 334: a harmful species; RAVERET-WATTEL, t. c. pp. 335-337: *A. ispidioides* Less., correct name for *A. moluccana*, auct.; HARTERT, Nov. Zool. viii, p. 96.

Alcyon, review of the species; ROTHSCHILD & HARTERT, t. c. pp. 143 & 144; *A. azurea yamdenæ*, n. subsp., Yamdena Isl., Tenimber Ia.; ROTHSCHILD, Bull. B. O. C. xi, p. 65.

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Ceyx lepida sacerdotis, notes on; id. & HARTERT, Nov. Zool. viii, p. 186: *C. lepida collectoris*, n. sp., Guadalcanar; iid. t. c. p. 377: *C. meeki*, n. sp., Isabel Isl., Solomon Archipelago; ROTHSCHILD, Bull. B. O. C. xii, p. 23.

Syma, review of the species; HARTERT & ROTHSCHILD, Nov. Zool. viii, pp. 145-149: *S. torotoro meeki*, n. subsp., S.E. New Guinea, *S. t. ochracea*, Goodenough and Fergusson Isl.; iid. t. c. pp. 147-149: *S. weiskei* is ♀ of *S. megarkhyncha*; iid. t. c. p. 149.

Melidora and *Clytoceyx*, notes on the species; iid. t. c. pp. 149-151.

Dacelo leachi intermedia, notes on; iid. t. c. p. 151.

Sauromarptis, notes on the species; iid. t. c. pp. 151-153: *S. aruensis* and *S. kubaryi* not distinct from *S. gaudichaud*; iid. t. c. pp. 151 & 152.

Halcyon, review of the Papuan species; iid. t. c. pp. 153-156: *H. elizabeth*, notes on; iid. t. c. pp. 153 & 154: *H. semicarpuleus*, a key to the subspecies of; SHELLEY, Ibis 1901, p. 173: *H. erythrogaster*, from St. Jago Isl., Cape Verde Isl. is *H. actæon* (Less.); OUSTALET, C.R. Congr. Orn. III, p. 228: *H. macleayi*, from Little Key Ids.; HARTERT, Nov. Zool. viii, p. 97.

Tanysiptera, review of the species; ROTHSCHILD & HARTERT, t. c. pp. 156-162: *T. rubiensis* and *T. microrhyncha* = *T. galatæa*; iid. t. c. pp. 160 & 161.

Sub-order BUCEROTES.

Bucorvus cafer and *B. abyssinicus*, notes on the anatomy; BEDDARD, P. Zool. Soc. London 1901, vol. i, pp. 16-24, figg. 2-5 in text.

Sub-order UPUPÆ.

Upupa epops, at Reigate; BINGHAM, Zoologist 1901, p. 269: *U. intermedia*, n. subsp., South Abyssinia; GRANT & REID, Ibis 1901, p. 674.

Irisor, revision of the genus, and 'key to species'; GRANT, Bull. B. O. C. xii, pp. 36-38: *I. damarensis*, n. sp., Damara Land; id. t. c. p. 37: *I. somaliensis*, n. sp., Somali Land; id. t. c. p. 38.

- Thalurania fanniae* and *T. verticeps*, notes on ; iid. t. c. pp. 221 & 222.
Aithya scitulus, n. sp., Jamaica ; BREWSTER & BANGS, P. New England Zool. Club ii, pp. 49 & 50.
Eugenes spectabilis chiriquensis, n. subsp., Panama ; NEHRKORN, Ornith. Monber. ix, pp. 132 & 133.
Phlogophilus harterti, n. sp., Peru ; BERLEPSCH & STOLZMANN, Ibis 1901, pp. 717 & 718.
Adelomyia cervina, distinct from *A. melanogenys* ; SIMON & DALMAS, C.R. Congr. Orn. III, p. 223.
Cyanocephalus emmae, ♀ described ; iid. t. c. pp. 223 & 224.
Polycaenus harterti, n. sp., W. Colombia ; SIMON, t. c. pp. 202 & 203.

Order TROGONES.

- Hapaloderma æquatoriale*, n. sp., Cameroons ; SHARPE, Bull. B. O. C. xii, p. 3.

Order COCCYGES.

Sub-order MUSOPHAGI.

- Gallirix johnstoni*, n. sp., Ruwenzori, Equat. Africa ; SHARPE, Bull. B. O. C. xi, p. 57.

Sub-order CUCULI.

- Coccyzus glandarius*, in Somali-land ; SHARPE, P. Zool. Soc. London 1901, vol. ii, p. 309.
Cuculus canorus, notes on ; BAU, Ornith. Jahrb. xii, pp. 20-26 ; LOOS, t. c. pp. 221-226 : notes on ; X. RASPAIL, C.R. Congr. Orn. III, pp. 243-250 : notes on the eggs ; TUCK, Zoologist 1901, p. 317 ; LATTER, S. East Natural. 1901, pp. 31-35 : notes on the young ; WESTELL, Zoologist 1901, pp. 155 & 156 : in Nyasaland ; SHELLEY, Ibis 1901, p. 172 : *C. solitarius*, notes on the nesting ; IVY, Ibis 1901, pp. 24-26, fig. 2.
Cacomantis addendus, n. sp., Kulambangra Is. ; ROTHSCILD & HARTERT, Nov. Zool. viii, p. 185.
Coccyzus americanus, in Somersetshire ; READ, Bull. B. O. C. xii, pp. 26 & 27 : at Ringwood ; CORBIN, Zoologist 1901, pp. 474 & 475.
Eudynamis, skull figured ; BEDDARD, Ibis 1901, p. 209, fig. 23.
Scythrops, skull figured ; id. t. c. p. 211, fig. 25.
Centropus sinensis, nestling described ; BONHOTE, P. Zool. Soc. London 1901, vol. i, pp. 74 & 75 : *C. natalensis*, notes on the nesting ; IVY, Ibis 1901, p. 28, fig. 3.
Pyrrhocentor celebensis, skull figured ; BEDDARD, Ibis 1901, p. 210, fig. 24.
Rhinococcyx curvirostris, skull figured ; id. t. c. p. 212, fig. 26.
Carpococcyx radiatus, anatomy of ; id. t. c. pp. 200-214, figg. 20-22.

Order SCANSORES.

Sub-order INDICATOIRES.

- Indicator willcocksi*, n. sp., Gold Coast ; ALEXANDER, Bull. B. O. C. xii, p. 11.
I. variegatus, and allies, notes on the nesting ; IVY, Ibis 1901, pp. 20-22 :
I. feae, n. sp., Cassine River, Portuguese Guinea ; SALVADORI, Ann. Mus. Genova (2) xx, p. 783.

Prodotiscus peasei, n. sp., Unji, S. Abyssinia; GRANT, Bull. B. O. C. xi, pp. 67 & 68: *P. ellenbecki*, n. sp., Arusa-Galla country; ERLANGER, Ornith. Monber. ix, p. 182: *P. peasei*, figured; GRANT & REID, Ibis 1901, pl. xiii.

Sub-order CAPITONES.

Tricholema diademata, from Shoa; GRANT, Ibis 1901, p. 289.
Cyanops rubescens, figured; BAKER, J. Bombay Soc. xiii, pl. i.

Sub-order PICI.

Gecinus citrinocristatus, n. sp., Fokien Prov., S. China; RICKETT, Bull. B. O. C. xi, p. 46.
Chloronerpes lita, n. sp., Lita, North Ecuador; ROTHSCILD, t. c. p. 70.
Chrysophlegma wrayi, male described; BONHOTE, P. Zool. Soc. London 1901, vol. i, p. 71.
Melanerpes seductus, n. sp., San Miguel Is., Panama; BANGS, Auk xviii, pp. 26 & 27.
Sphyrapicus varius daggetti, n. subsp., Southern California; GRINNELL, Condor iii, p. 12.
Dendrocopus major, notes on; NEW, Zoologist 1901, pp. 95-97: breeding in the South of Scotland; CAMPBELL, Ann. Scott. Nat. Hist. 1901, pp. 234 & 235: in Midlothian; EVANS, t. c. p. 235; GODFREY, t. c. pp. 235 & 236: in East Lothian; HEPBURN, t. c. p. 181: *D. villosus*, nesting near Washington, D.C.; DANIEL, Auk xviii, p. 272: *D. picoideus*, n. sp., Queen Charlotte Ids.; OSGOOD, Bull. U.S. Dep. Agric. Biol. No. 51, pp. 44 & 45: *D. minor*, habits of; NEW, Zoologist 1901, p. 107; LEWIS, t. c. pp. 184 & 185; MACPHERSON, t. c. pp. 223 & 224: *Dendrocopus*, sp. (n.?), Sardinia; KLEINSCHMIDT, Ornith. Monber. ix, p. 168.
Dendropicus nandensis, n. sp., Nandi, Equat. Africa; NEUMANN, t. c. pp. 184 & 185: *D. stierlingi*, n. sp., N. Nyasaland; REICHENOW, t. c. pp. 166 & 167.
Veniliornis neglectus, n. sp., Chiriqui; BANGS, P. New England Zool. Club ii, pp. 99 & 100.
Mesopicus rhodogaster, distinct from *M. spodocephalus*; NEUMANN, Ornith. Monber. ix, pp. 183 & 184.
Tiga, notes on the species; HARTERT, Nov. Zool. viii, p. 50: *T. borneonensis* Dubois = *T. javanensis* (Ljungh.); id. t. c. p. 50: *T. javanensis exsul*, n. subsp., Bali; id. t. c. p. 51.
Campophilus guatemalensis byzans, n. subsp., Divala, Panama; BANGS, Auk xviii, pp. 360 & 361.
Ceophlaeus erythrope, egg described; IHERING, Ibis 1901, p. 13.
Dryotomus pileatus, in Connecticut; JOB, Auk xviii, p. 193.
Picumnus macconnelli, n. sp., British Guiana; SHARPE, Bull. B. O. C. xii, p. 4.
Sania abnormis magnirostris, n. subsp., Nias Is.; HARTERT, Nov. Zool. viii, p. 51: notes on *S. abnormis* and *S. everetti*; id. t. c. p. 51.

Order EURYLÆMIFORMES.

Family EURYLÆMIDÆ.

SHARPE, Hand-list B, iii, pp. 1-3.

Order MENURIFORMES.

Family MENURIDÆ.

SHARPE, Hand-list B, iii, p. 3.

Order PASSERIFORMES.

Intestinal tract ; see MITCHELL (501).

Family PTEROPTOCHIDÆ.

SHARPE, Hand-list B, iii, pp. 4-7.

Family CONOPOPHAGIDÆ.

SHARPE, Hand-list B, iii, pp. 8 & 9.

Family FORMICARIIDÆ.

SHARPE, Hand-list B, iii, pp. 9-45.

Thamnophilus ochrus, n. sp., Paraguay ; OBERHOLSER, P. Soc. Washington xiv, p. 188.

Dysithamnus mentalis, in Paraguay ; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 18.

Myrmotherula boliviana, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 96 & 97.

Formicivora strigilata, in Matto Grosso ; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 9 : its distribution ; id. Ibis 1901, pp. 515 & 516.

Terenura xanthonota, n. sp., Peru ; CHAPMAN, Bull. Amer. Mus. xiv, p. 228 : *T. sharpei*, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 97 & 98.

Cercomacra crepera, n. sp., Divala, Panama ; BANGS, Auk xviii, pp. 365 & 366.

Pithys salvini, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 98 & 99.

Pittasoma rufopileatum, n. sp., N.W. Ecuador ; HARTERT, Nov. Zool. viii, p. 370.

Grallaria sororia, n. sp., Idma, Santa Ana, E.C. Peru ; BERLEPSCH & STOLZMANN, C.R. Congr. Orn. iii, pp. 194 & 195 : *G. paramba*, figured ; HARTERT, Nov. Zool. viii, p. 371, pl. v, fig. 3.

Family DENDROCOLAPTIDÆ.

SHARPE, Hand-list B, iii, pp. 45-87.

Geositta fortis, n. sp., Panza, W. Peru ; BERLEPSCH & STOLZMANN, C.R. Congr. Orn. iii, p. 194.

Schizæaca harterti, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 91 & 92.

Synallaxis omissa, n. sp., Pará ; HARTERT, Bull. B. O. C. xii, p. 71 : *S. whitei*, in Matto Grosso ; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 7.

Siptornis maculicauda, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 92 & 93 : *S. heterura*, n. sp., Bolivia ; id. t. c. pp. 93 & 94 : *S. modesta sajamae* et *S. modesta rostrata*, nn. subsp., Bolivia ; id. t. c. pp. 94 & 95 : *S. marayniocensis robusta*, n. subsp., Bolivia ; id. t. c. p. 95 : *S. ottonia*,

- n. sp., Cuzco, C. Peru ; BERLEPSCH, C.R. Congr. Orn. iii, pp. 197 & 198 : *S. punensis*, n. sp., Peru ; BERLEPSCH & STOLZMANN, Ibis 1901, pp. 718 & 719.
- Automolus exsertus*, n. sp., Divala, Panama ; BANGS, Auk xviii, pp. 367 & 368 : *A. pallidigularis albidior*, n. subsp., N. W. Ecuador ; HARTERT, Nov. Zool. viii, p. 369.
- Anabazenops acritus*, n. sp., Paraguay ; OBERHOLSER, P. Soc. Washington xiv, p. 187.
- Sclerurus umbretta*, nidification of ; GOELDI, Bol. Mus. Para. iii, pp. 214-217 : *S. mexicanus obscurior*, n. subsp., N. W. Ecuador ; HARTERT, Nov. Zool. viii, p. 370.
- Margarornis stictonota*, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 95 & 96.
- Xyphocolaptes castaneus*, in Matto Grosso ; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 8.
- Picolaptes tenuirostris apothetus*, n. subsp., Paraguay ; OBERHOLSER, P. Soc. Washington xiv, p. 188.

Family TYRANNIDÆ.

- SHARPE, Hand-list B, iii, pp. 88-150.
- Ochtheaca keaysi*, n. sp., Peru ; CHAPMAN, Bull. Amer. Mus. xiv, p. 227.
- Todirostrum maculatum*, nidification of ; GOELDI, Bol. Mus. Para. iii, pp. 208-210.
- Euscarthmus spodiops*, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 87 & 88 : *E. margaritaceiventris*, in Matto Grosso ; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 6.
- Canostriccus simplex*, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 88 & 89.
- Hemitriccus flammulatus*, n. sp., Bolivia ; id. t. c. p. 87.
- Pogonotriccus ottonis*, n. sp., Bolivia ; id. t. c. pp. 89 & 90.
- Mionectes assimilis dyscolus*, n. subsp., Divala, Panama ; BANGS, Auk xviii, p. 362.
- Leptopogon amaurocephalus incastus*, n. subsp., Paraguay ; OBERHOLSER, P. Soc. Washington xiv, p. 187.
- Myopagis yucatanensis*, n. sp., Yucatan ; NELSON, t. c. pp. 172 & 173.
- Phyllomyias sclateri*, n. sp., Bolivia ; BERLEPSCH, J. Ornith. 1901, pp. 90 & 91.
- Elania sordidata*, n. sp., San Miguel Isl., Panama ; BANGS, Auk xviii, pp. 28 & 29.
- Myiozetes texensis*, nesting habits ; SKINNER, Condor iii, pp. 29-31, cum fig.
- Pyrocephalus rubineus mexicanus*, in Florida ; WILLIAMS, Auk xviii, p. 273.
- Empidonax trailii alnorum*, breeding in New Jersey ; MILLER, t. c. p. 108 : a summer resident in Massachusetts ; FARLEY, t. c. pp. 347-355 : *E. fulvifrons pygmaeus*, nesting habits ; LUSK, Condor iii, pp. 38-41, cum fig. : *E. wrightii*, note on the nest and eggs ; SILLOWAY, t. c. pp. 6 & 7, cum fig. : *E. trepidus*, n. sp., Guatemala ; NELSON, Auk xviii, pp. 47 & 48.
- Nuttallornis borealis*, note on ; BARLOW, Condor iii, p. 165, cum fig.
- Horiopsis virens*, variations in size ; HOWE, Auk xviii, p. 194 : *H. richardsoni*, note on ; BARLOW, Condor iii, p. 166, cum fig.
- Muscivora* Lacep. vice *Milvulus* Auct., *Onychorhynchus* Fischer vice *Muscivora* Auct. ; OBERHOLSER, Auk xviii, pp. 193 & 194.

Family OXYRHAMPHIDÆ.

- SHARPE, Hand-list B, iii, p. 150.

Family PIPRIDÆ.

SHARPE, t. c. pp. 151-160.

Pipra mentalis ignifera, n. subsp., Divala, Panama; BANGS, Auk xviii, pp. 363 & 364.

Family COTINGIDÆ.

SHARPE, Hand-list B, iii, pp. 161-178.

Pachyramphus notius, n. sp., Lower Uruguay; BREWSTER & BANGS, Auk xviii, pp. 53 & 54: *P. major itzensis*, n. subsp., Northern Yucatan; NELSON, P. Soc. Washington xiv, p. 173.

Lipaugus holerythrus, figured; DUBOIS, Synopsis Avium, pl. viii, fig. 1.

Atila citreopygius, figured; DUBOIS, t. c. pl. viii, fig. 2: *A. mexicanus*, Eastern Mexico; NELSON, P. Soc. Washington xiv, p. 172.

Rupicola peruviana and *R. sanguinolenta*, notes on; GOODFELLOW, Ibis 1901, pp. 711-713.

Cephalopterus penduliger, note on; id. t. c. p. 715.

Gymnoderus fatidus, head figured; id. t. c. pl. xiv.

Family PHYTOTOMIDÆ.

SHARPE, Hand-list B, iii, p. 178.

Family PITTIDÆ.

SHARPE, t. c. pp. 179-185.

Pitta, notes on Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. viii, pp. 62-64: *P. mackloti aruensis*, n. subsp., Aru Is.; iid. t. c. p. 63: *P. reichenovi*, n. sp., Central Congo; MADARÁSZ, Ornith. Monber. ix, p. 133: *P. longipennis*, n. sp., Lake Nyasa; REICHENOW, t. c. p. 117: *P. anerythra*, n. sp., Isabel Isl., Solomon Archipelago; ROTHSCHILD, Bull. B. O. C. xii, p. 22: *P. cucullata* from Java; HARTERT, Nov. Zool. viii, p. 52: *P. iris*, egg described; LE SOUËF, Victorian Natural. xviii, p. 15.

Family PHILEPITTIDÆ.

SHARPE, Hand-list B, iii, p. 185.

Family XENICIDÆ.

SHARPE, t. c. p. 186.

Family ATRICHORNITHIDÆ.

SHARPE, t. c. p. 187.

Family HIRUNDINIDÆ.

SHARPE, t. c. pp. 187-203.

Chelidon urbana, breeding in October; STEELE-ELLIOTT, Zoologist 1901, p. 69: at Margate, November 25th; MANNELL, Zoologist 1901, p. 30.

Cotile mauritanica, n. sp., Rehamra, Morocco; MEADE-WALDO, Bull. B. O. C. xii, p. 27.

Tachycineta albiventris, in Matto-Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 3.

- Hirundo rustica*, at Alten (70° N. Lat.) ; HAASE, *Aquila* viii, p. 297 : note on nesting and habits ; VACQUEZ, C.R. Congr. Orn. iii, pp. 253-256 : *H. neumanni*, n. sp., Masailand ; REICHENOW, J. Ornith. 1901, p. 282 : *H. erythrogaster*, its moult ; DWIGHT, *Auk* xviii, pp. 203 & 204 : *H. melanocrissa*, note on ; GRANT & REID, *Ibis* 1901, pp. 664 & 665.
- Psalidoprocne*, a key to the species ; SHELLEY, *Ibis* 1901, p. 172 : *P. albiceps*, in Nyasaland ; id. t. c. p. 172.
- Stelgidopteryx ridgwayi*, n. sp., Yucatan and Mexico ; NELSON, P. Soc. Washington xiv, p. 174 : *S. ruficollis æqualis*, n. subsp., Santa Marta, Colombia ; BANGS, P. New England Zool. Club ii, pp. 58 & 59.

Family MUSCICAPIDÆ.

- SHARPE, Hand-list B, iii, pp. 204-286.
- Micreca fascians*, its changes of plumage ; HALL, Pr. Soc. Victoria (2) xiii, pp. 19-24 : *M. papuana*, figured ; HARTERT, Nov. Zool. viii, p. 425, pl. vii, fig. 2 : *M. viridiflava* = *M. papuana* Meyer, the latter not being a *Pacilodryas* ; ROTHSCCHILD & HARTERT, Bull. B. O. C. xi, p. 44.
- Alseonax gambaga*, n. sp., Gold Coast Hinterland ; ALEXANDER, Bull. B. O. C. xii, p. 11.
- Empidonax*, n. g. Type *E. semipartita* (Rüpp.) : REICHENOW, J. Ornith. 1901, p. 285.
- Dioptrornis fischeri*, notes on ; JACKSON, *Ibis* 1901, pp. 88 & 89.
- Muscicapa ussheri* Sharpe = *Sylvia simplex* Lath. ; SHARPE, *Ibis* 1901, p. 52.
- Siphia banyumas* is restricted to Java ; its allies ; HARTERT, Nov. Zool. viii, p. 55 : *S. banyumas banyumas* (fig. 4), and *S. b. ruficastra* (fig. 5), figured ; HARTERT, Nov. Zool. viii, pl. vi : *S. enganensis* is the male of *S. herioti* ; SHARPE, Bull. B. O. C. xi, p. 60.
- Cyornis*, notes on the genus ; FINSCH, Notes Leyden Mus. xxiii, pp. 48-52 : *C. hosei*, n. sp., Borneo ; id. t. c. p. 48.
- Petræca leggei*, notes on ; HALL, Victorian Natural. xvii, pp. 192-195 : *P. phænicea*, its changes of plumage ; HALL, Pr. Soc. Victoria (2) xiii, pp. 10-18.
- Erythromyias riedeli*, doubtfully distinct from *E. dumetoria* ; HARTERT, Nov. Zool. viii, pp. 168 & 169.
- Dammeria henrici*, ♂ ♀ figured ; id. t. c. pl. vi, figg. 1 & 2.
- Dendrobiastes basilanica* Sharpe, is the female of *Muscicapula mindanensis* W. Blasius, and is to be called *M. basilanica* ; SHARPE, Bull. B. O. C. xi, p. 60.
- Gerygone kisserensis*, figured ; FINSCH, Notes Leyden Mus. xxii, pl. 4, fig. 1, *G. wetterensis*, fig. 2.
- Pseudogerygone tenebrosa*, n. sp., Fitzroy River, N. W. Australia ; HALL, Victorian Natural. xviii, p. 79.
- Pacilodryas armiti* De Vis, referred to the genus *Heteromyias* ; SHARPE, Bull. B. O. C. xi, p. 60 : *P. pachydemas*, n. sp., S. E. New Guinea ; REICHENOW, Ornith. Monber. ix, p. 5.
- Xanthopygia ovestoni*, n. sp., Ishigaki, Liu Kiu Is. ; BANGS, Bull. Mus. Harvard xxxvi, pp. 265 & 266.
- Pogonocichla intensa*, n. sp., Uganda ; SHARPE, Bull. B. O. C. xi, p. 67.
- Polioptila*, revision of the genus ; HELLMAYR, Nov. Zool. viii, pp. 356-361 : *P. berlepschi*, n. sp., C. and S. Brazil ; id. t. c. pp. 356 & 357 : *P. nigriceps* and its allies ; id. t. c. pp. 357-369 : *P. buffoni innotata*, n. subsp., British Guiana and Rio Branco ; id. t. c. pp. 359 & 360 : *P. bilineata*, notes on ; id. t. c. pp. 360 & 361 : *P. cærulea obscura*, nesting habits ; CHAMBERLIN, Condor iii, pp. 33-36, cum fig.

- Myiopornis*, n. g., Type *M. böhmi* (Reichen.); REICHENOW, J. Ornith. 1901, p. 285.
- Chloropeta kenya*, n. sp., Mt. Kenya, Brit. E. Africa; SHARPE, Bull. B. O. C. xii, p. 35.
- Batis bella* (Elliot) = *B. orientalis* (Heugl.); GRANT & REID, Ibis 1901, p. 662: *B. orientalis minor*, n. subsp., Juba River, N. E. Africa; ERLANGER, Ornith. Monber. ix, p. 181.
- Diaphorophya hormophora*, n. sp., Liberia to Togoland; REICHENOW, J. Ornith. 1901, p. 285.
- Chelidorchynx hypoxanthus*, note on; RIPPON, Ibis 1901, pp. 542 & 543.
- Erythrocercus holochlorus*, n. sp., Lower Juba River, N. E. Africa; ERLANGER, Ornith. Monber. ix, pp. 181 & 182.
- Rhipidura albiscapa*, young described; HALL, Victorian Natural. xviii, p. 20: *R. albina*, n. sp., Kulambangra Island; ROTHSCILD & HARTERT, Nov. Zool. viii, p. 183: *R. reichenowi*, n. sp., Molucca Is.; FINSCH, Notes Leyden Mus. xxii, pp. 257 & 258, pl. 4, fig. 3: *R. hoedti*, Büttik. = *R. buttkoferi* Sharpe; FINSCH, t. c. p. 256.
- Tchitrea melanura*, n. sp., Duki, Equatorial Africa; REICHENOW, J. Ornith. 1901, p. 285: *T. ignea*, n. sp., Angola; id. t. c. p. 285.
- Terpsiphone illex*, n. sp., Ishigaki, Liu Kiu Is.; BANGS, Bull. Mus. Harvard xxxvi, pp. 264 & 265.
- Myiagra feminina*, n. sp., Kulambangra Island; ROTHSCILD & HARTERT, Nov. Zool. viii, p. 183.
- Cryptolopha kinabaluensis*, n. sp., Mts. of N. W. Borneo; SHARPE, Bull. B. O. C. xi, p. 60: *C. umbrovirens*, in Somaliland; SHARPE, P. Zool. Soc. London 1901, vol. ii, p. 308: *C. mackenziana*, figured; JACKSON, Ibis 1901, pl. iii, fig. 1: *C. dorcadichroa*, distinct; SHARPE, t. c. p. 91.
- Monarcha richardsi*, remarks on; ROTHSCILD & HARTERT, Nov. Zool. viii, p. 182: *M. brodiei floridana*, n. subsp., Florida Island (p. 182), *M. kulambangrae*, n. sp., Kulambangra Island; iid. t. c. pp. 182 & 183.

Family CAMPOPHAGIDÆ.

SHARPE, Hand-list B, iii, pp. 286-305.

- Artamides leucorhynchus musschenbroeki*, notes on; HARTERT, Nov. Zool. viii, p. 170.
- Graucalus lettiensis* Meyer = *G. personatus* (S. Mull.); FINSCH, Notes Leyden Mus. xxii, p. 249: *G. timorlaensis* Meyer = *G. hypoleucus* Gould; id. t. c. p. 250: *G. vordermani*, n. sp., Kangean Isl. Java Sea; HARTERT, Bull. B. O. C. xii, p. 32.
- Edolisoma erythropygium* and *E. salomonis*, note on the species; ROTHSCILD & HARTERT, Nov. Zool. viii, pp. 373 & 374: *Graucalus holospodius* Sharpe, is an *Edolisoma*; iid. t. c. p. 374.
- Campophaga quiscalina* and *C. hartlaubi*, in Uganda; JACKSON, Ibis 1901, p. 86.
- Pericrocotus croceus*, note on; BONHOTE, P. Zool. Soc. London 1901, vol. i, p. 60.
- Lalage riedelii* Meyer = *L. timoriensis* (S. Müll.); FINSCH, Notes Leyden Mus. xxii, p. 251.

Family PYCNONOTIDÆ.

SHARPE, Hand-list B, iii, pp. 306-335.

- Pycnonotus reichenowi*, n. sp., Yeshbum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. ix, p. 30: = *P. xanthopygus* Hempr. & Ehr.; GRANT, Ibis 1901, p. 521.
- Poliolophus niewenhuysii*, n. sp., Central Borneo; FINSCH, Notes Leyden Mus. xxiii, pp. 95 & 96.

Family TIMELIIDÆ.

- Trochalopteron ripponi*, figured; RIPPON, Ibis 1901, pl. xi, fig. 1: *T. sharpei*, n. sp., Kauri-Kachin district, Burma; id. Bull. B. O. C. xii, p. 13.
- Argya sharpei*, n. sp., Somaliland; GRANT & REID, Ibis 1901, p. 662: *A. acaciae*, note on; WITHERBY, Ibis 1901, pp. 252 & 253.
- Megalurus gramineus*, young described; HALL, Victorian Natural. xviii, p. 20.
- Dryonastes kaurensis*, n. sp., Kauri-Kachin district, Burma; RIPPON, Bull. B. O. C. xii, p. 13.
- Crateropus stictilæma*, n. sp., Gold Coast, Hinterland; ALEXANDER, Bull. B. O. C. xii, p. 10: *C. hartlaubi*, in Nyasaland; SHELLEY, Ibis 1901, p. 170: *C. leucocephalus*, note on; WITHERBY, Ibis 1901, p. 253.
- Timelia pileata* is confined to Java, *T. pileata jerdoni* is the Burmese form, and *T. pileata bengalensis* the form from N. E. India; HARTERT, Nov. Zool. viii, p. 53.
- Dendrobastes basilanica* Sharpe, is the female of *Muscicapula mindanensis* W. Blasius; SHARPE, Bull. B. O. C. xi, p. 60.
- Turdinus batesi* and *T. cerviniventris*, n. spp., Cameroons to R. Congo; SHARPE, Bull. B. O. C. xii, pp. 2 & 3: *T. puvelli*, n. sp., Cassine River, Portuguese Guinea; SALVADORI, Ann. Mus. Genova (2) xx, pp. 767 & 768.
- Crateroscelis pectoralis*, figured; HARTERT, Nov. Zool. viii, p. 425, pl. vii, fig. 3.
- Corythocichla squamata*, n. sp., Hangenai Peak (6,000 feet), Cachar; BAKER, J. Bombay Soc. xiii, pp. 403 & 404.
- Rimator malacoptilus*, note on the nidification; id. t. c. pp. 706 & 707; MASSON, t. c. pp. 708 & 709.
- Misornis prillwitszi*, n. sp., Kangean Isl., Java Sea; HARTERT, Bull. B. O. C. xii, p. 32.
- Drymochares cruralis*, note on; RIPPON, Ibis 1901, pp. 531 & 532.
- Tesia cyaniventris*, note on; RIPPON, Ibis 1901, p. 532.

Family MIMIDÆ.

- Nesomimus melanotis dierythrus*, n. subsp., Indefatigable and Seymour Ids.; HELLER & SNODGRASS, Condor iii, p. 74.
- Harporhynchus bendirei*, note on the nest and eggs; BROWN, Auk xviii, pp. 225-231.
- Galeoscoptes bermudianus*, n. sp., Bermuda; BANGS & BRADLEE, Auk xviii, pp. 253 & 254.
- Myiadestes coracinus*, figured, from the Eastern Andes; GOODFELLOW, Ibis 1901, p. 311, pl. viii.

Family TROGLODYTIDÆ.

- Heleodytes zonatus restrictus*, n. subsp., Tabasco, Mexico; NELSON, Auk xviii, p. 49.
- Thryophilus albipectus hypoleucus*, n. subsp., R. Orinoko; BERLEPSCH & HARTERT, Bull. B. O. C. xii, p. 12: *T. goodfellowi*, n. sp., E. Ecuador; SCLATER, op. cit. xi, p. 47: *T. albipectus bogotensis*, n. subsp., Bogota; HELLMAYR, Verh. Ges. Wien li, p. 774.
- Troglodytes peninsularis*, n. sp., Yucatan; NELSON, P. Soc. Washington xiv, pp. 174 & 175: *T. parvulus*, evolution of pattern in feathers; BONHOTE, P. Zool. Soc. London 1901, vol. ii, pl. xx, fig. 1.

- Anorthura hiemalis helleri*, n. subsp., Kodiak Is., Alaska; OSGOOD, Auk xviii, pp. 181 & 182.
Salpinctes obsoletus, in Pueblo Co., Colorado, in winter; LOWE, Auk xviii, p. 276.
Microcerculus pectoralis, n. sp., La Guaira, Venezuela; ROBINSON & RICHMOND, P. U. S. Mus. xxiv, p. 178.

Family TURDIDÆ.

- SEEBOHM, H. A Monograph of the Turdidæ or Family of Thrushes. Edited and completed (after the Author's death) by R. BOWDLER SHARPE. London, 1901, Imp. 4to, Part XI. The following species are figured: *Merula celebensis*, *M. javanica*, *M. vitiensis*, *M. layardi*, *M. vinitincta*, *M. xanthopus*, *M. mindorensis*, *M. cardis*, *M. reevesi*, *M. unicolor*, *M. aurantia*, *M. nigriceps*.
Geocichla audacis, Hartert = *G. peronii*; FINSCH, Notes Leyden Mus. xxii, p. 263.
Hesperocichla naevia meruloides (Swains.) is a subspecies, Hab. Alaska, California in winter; GRINNELL, Auk xviii, p. 143.
Turdus varius in Heligoland; HARTLAUB, Ornith. Monber. ix, p. 91: *T. guttatus fischeri*, n. subsp., Pangani; HELLMAYER, t. c. pp. 53, 54: *T. coburni*, n. sp., Iceland; SHARPE, Bull. B. O. C. xii, p. 28: *T. musicus*, details of migration; CLARKE, Rep. Brit. Ass. 1900, pp. 404-409: its song in winter; FOWLER, Zoologist 1901, pp. 212-218: evolution of pattern in feathers; BONHOTE, P. Zool. Soc. London 1901, vol. ii, pl. xx, figg. 8, 10 & 11: *T. pilaris*, id. t. c. fig. 9: nesting in Hungary; CHERNEL, Aquila viii, pp. 291-293: *T. pilaris* x *Merula nigra*, figured; MARTORELLI, Atti Soc. Ital. xl, tav. i, fig. 1: *T. ignobilis goodfellowi*, n. subsp., Cauca Valley, W. Colombia; HARTERT & HELLMAYER, Nov. Zool. viii, p. 492: *T. colombianus*, n. sp., Cauca Valley; iid. t. c. pp. 492 & 493: *T. rufiventris* in Matto Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 2: *T. merula cabrera*, n. subsp., Canary Is.; HARTERT, Nov. Zool. viii, p. 313: *T. torquatus*, habits; BUTTERFIELD, Zoologist 1901, pp. 28 & 29: at St Leonards-on-Sea; NICOLL, t. c. p. 69: *T. alpestris*, note on a living specimen; SCLATER, Bull. B. O. C. xi, p. 60: *T. dubius*, eggs figured; DRESSER, Ibis 1901, pl. ix, figg. 1-4: *T. obscurus*, eggs figured; id. t. c. pl. ix, figg. 5-8: *T. atrigularis*, eggs figured; id. t. c. pl. ix, figg. 9-12: *T. sibiricus*, eggs figured; id. t. c. pl. ix, figg. 13-16: *T. atrigularis*, at Yeshbum, South Arabia; LORENZ & HELLMAYER, J. f. O. 1901, p. 240: *T. obscurus* x *T. iliacus*; MARTORELLI, C.R. Congr. Orn. iii, pp. 229-231, pl. ii.
Hylocichla aonalaschke verecunda, n. subsp., Moresby Isl. British Columbia; OSGOOD, Auk xviii, pp. 183-185; *H. aonalaschke slevini*, n. subsp., California; GRINNELL, t. c. pp. 258-260: *H. fuscescens fuliginosa*, in Massachusetts; FAXON, t. c. p. 198.
Merula plebeia differens, n. subsp., Chiapas, Mexico; NELSON, P. Soc. Washington xiv, p. 175: *M. naumanni*, in Italy; MARTORELLI, Avicula v, p. 131.
Cercotrichas podobe, in Somali-land; GRANT & REID, Ibis 1901, p. 661.
Cossypha mauensis Neumann = *C. iolema* Reichenow; SHARPE, Ibis 1901, p. 71: *C. caffa iolema* Reichenow, is not entitled to subspecific rank; SHELLEY, Ibis 1901, p. 591: *C. omoensis*, figured; SHARPE, P. Zool. Soc. London 1901, vol. ii, pl. xxxvi, fig. 1.
Cichladusa rufipennis, n. sp., Lamu, E. Africa; SHARPE, Bull. B. O. C. xii, p. 35.
Callene cyornithopsis, n. sp., Cameroons; id. t. c. p. 4.

- Alethe alexandri*, n. sp., Cameroons; id. t. c. p. 4.
Erithacus rubecula, in Shetland; APLIN, Zoologist 1901, pp. 106, 154; SAXBY, t. c. p. 154; HENDERSON, t. c. p. 181: and its allies; HARTERT, Nov. Zool. viii, pp. 314-318: *E. rubecula melophilus*, n. subsp., British Islands; id. t. c. p. 317: *E. cairii*, notes on; BAU, Ornith. Monber. ix, pp. 161-163.
Sialia sialis, in Northamptonshire; N. C. ROTHSCHILD, Bull. B. O. C. xii, p. 35: *S. sialis bermudensis*, n. subsp., Bahamas; VERRILL, Amer. J. Sci. (4) xii, p. 65: *S. arctica*, at Pueblo Co., Colorado in winter; LOWE, Auk xviii, p. 276.
Ruticilla phaniscurus, nesting in Shetland; STURROCK, Ann. Scott. Nat. Hist. 1901, pp. 194-196: *R. titis*, curious note on; GEYR VON SCHWEPENBURG, Ornith. Monber. ix, pp. 169 & 170: *R. rufiventris pleskei*, n. subsp., Nan-schan, Northern China; SCHALOW, J. Ornith. 1901, pp. 454 & 455.
Pratincola rubicola, distribution in Yorkshire; BUTTERFIELD, Zoologist 1901, pp. 64-67.
Saxicola ananthe and *S. ananthe leucorrhoea*, note on distribution; STEJNEGER, P. U. S. Mus. xxiii, pp. 473-481, Auk xviii, pp. 186 & 187: *S. ananthe*, not yet recorded from Maine; KNIGHT, t. c. pp. 275 & 276: *S. somalica* Sharpe=*S. vittata* Hempr. & Ehr.; GRANT & REID, Ibis 1901, p. 658: *S. aurita*, in S. Abyssinia; iid. t. c. p. 659: *S. albinotata* Neumann=*S. pileata* Gmelin; SHARPE, Ibis 1901, p. 77: *S. monticola*, notes on; FINSCH, Notes Leyden Mus. xxii, pp. 153-156.
Accentor collaris reiseri, n. subsp., Dalmatia to Greece; v. TSCHUSI, Ornith. Monber. ix, p. 131.

Family SYLVIIDÆ.

- Sylvia nisoria*, in Barra; MACGILLIVRAY, Ann. Scott. Nat. Hist. 1901, p. 114: from South Abyssinia and Somaliland; GRANT & REID, Ibis 1901, pp. 645 & 646.
Muscicapa ussheri Sharpe=*Sylvia simplex* Lath.; SHARPE, t. c. p. 52.
Sylvia clara, n. sp., Tunis; KLEINSCHMIDT, Ornith. Monber. ix, p. 167: *S. curruca*, nesting in West Ross-shire; FOWLER, Ann. Scott. Nat. Hist. 1901, p. 234: *S. conspicillata bella*, n. subsp., Canary Islands; TSCHUSI, Ornith. Monber. ix, p. 130: not distinct from *S. conspicillata*; HARTERT, Nov. Zool. viii, p. 318: *S. atricapilla*, from the Mau district, in winter; JACKSON, Ibis 1901, p. 51: *S. atricapilla* and *S. heinekeni* in the Canaries; HARTERT, Nov. Zool. viii, pp. 319 & 320.
Sylvia atricapilla obscura, n. subsp., Madeira; TSCHUSI, Ornith. Monber. ix, pp. 129 & 130: *S. melanocephala leucogastra*, from the Canary Islands; HARTERT, Nov. Zool. viii, pp. 318 & 319: *S. deserti*, in Madeira; TSCHUSI, Ornith. Jahrb. xii, p. 226.
Melospilus rothschildi, n. sp., Palestine; MADARÁSZ, Termes. Fuzetek xxiv, pp. 351 & 352.
Phylloscopus sibilatrix flavescens, in W. Morocco; HARTERT, Bull. B. O. C. xi, p. 65: *P. trochilus*, nesting in Shetland; STURROCK, Ann. Scott. Nat. Hist. 1901, pp. 194-196: moulting in March; SHARPE, Ibis 1901, p. 53: *P. rufus canariensis* (*P. fortunatus* Tristr.), notes on; HARTERT, Nov. Zool. viii, pp. 320-322: *P. superciliosus*, in Madeira; TSCHUSI, Ornith. Jahrb. xii, p. 227.
Hypolais, sp. (n. ?), from Tunis; KLEINSCHMIDT, Ornith. Monber. ix, p. 167.
Acrocephalus palustris, nesting in Somersetshire; HORSBRUGH, Zoologist 1901, pp. 472 & 473: *A. horticolus*, in the Fallstein district, N. Hartz Mountains; LINDNER, Ornith. Monschr. Schutze xvi, p.

- Locustella naevia*, in North Worcestershire; HOWARD, Zoologist 1901, pp. 60-63.
- Luscinola gracilirostris*, in South Abyssinia; GRANT & REID, Ibis 1901, p. 646.
- Calamanastes simplex*, figured; JACKSON, t. c. pl. ii, fig. 2: *C. stierlingi*, n. sp., Rovuma district, German East Africa; REICHENOW, Ornith. Monber. ix, p. 39.
- Eminia lepida*, difference of size in ♂ and ♀; SHARPE, Ibis 1901, p. 68.
- Apalis porphyrolæma*, difference of sexes; id. t. c. p. 68: *A. nigriceps*, ♀ described; ALEXANDER, Bull. B. O. C. xii, p. 12.
- Euprinodes cinereus*, figured; JACKSON, Ibis 1901, pl. iii, fig. 2: *E. neglecta* Alexander = *E. florisuga* (Reichenow); SHARPE, t. c. p. 67.
- Sylvicola gækwaari*, n. sp., Somaliland; SHARPE, Bull. B. O. C. xi, p. 47: *S. baraka* and *S. jacksoni* are distinct species; SHARPE, Ibis 1901, p. 69.
- Eremomela griseo-flava*, note on; WITHERBY, Ibis 1901, p. 254.
- Camaroptera chrysocnemis* (Licht.), is distinct from *C. brevicaudata* (Cretzschm.); GRANT & REID, Ibis 1901, p. 648.
- Cisticola erythrops*, in Nyasaland; SHELLEY, Ibis 1901, p. 170: *C. tinniens*, from Mau plateau; JACKSON, Ibis 1901, pp. 55 & 56: *C. lavendula*, n. sp., Somaliland; GRANT & REID, Ibis 1901, pp. 650 & 651: *C. erythrogenys* (Rüpp.), is distinct from *C. robusta*; iid. t. c. pp. 652 & 653: *C. erythrops*, from S. Abyssinia; iid. t. c. p. 654: *C. neumanni*, n. sp., Mt. Kenya; HARTERT, Bull. B. O. C. xii, p. 13: *C. aridula*, note on; WITHERBY, Ibis 1901, p. 256.
- Sericornis salvadorii*, n. sp., S.E. New Guinea; REICHENOW, Ornith. Monber. ix, p. 4 [= *Crateroscelis pectoralis* Rothschild & Hartert, Bull. B. O. C. xi, p. 44].
- Malurus elizabethæ*, n. sp., King Is., Bass Strait; CAMPBELL, Ibis 1901, pp. 10 & 11: *M. leucopterus*, note on; NORTH, Rec. Austral. Mus. iv, pp. 209 & 210: *M. assimilis*, n. sp., Australia; NORTH, Victorian Natural. xviii, pp. 29 & 30: *M. edouardi*, n. sp., N. W. Australia; CAMPBELL, op. cit. xvii, pp. 203 & 204.
- Amytis gigantura*, n. sp. [potius *megalura*], Western Australia; MILLIGAN, Victorian Natural. xviii, pp. 27 & 28.
- Acanthiza marsleri*, n. sp., King George's, Western Australia; NORTH, Agric. Gaz. N. S. W. xii, p. 1425.

Family VIREONIDÆ.

- Vireo bermudianus*, n. sp., Bermuda; BANGS & BRADLEE, Auk xviii, pp. 252 & 253: *V. belli*, in New Hampshire; BREWSTER, t. c. p. 274.
- Vireolanius bolivianus*, n. sp., Bolivia; BERLEPSCH, J. Ornith. 1901, p. 82.
- Cyclorhis coibæ*, n. sp., Coiba Is., Panama; HARTERT, Bull. B. O. C. xii, p. 33.

Family AMPELIDÆ.

- Ampelis cedrorum*, distribution in California; GRINNELL, Condor iii, pp. 146 & 147.

Family PRIONOPIDÆ.

- Prionops poliophus* and allies, notes on; SHARPE, Ibis 1901, p. 48: *P. melanoptera*, Somaliland, *P. intermedia*, Taveta, E. Africa, nn. spp.; SHARPE, Bull. B. O. C. xi, pp. 46 & 47: *P. martensi*, n. sp., Kamerun; REICHENOW, Beih. Arch. Naturg. 1901, p. 330.
- Sigmodus retzii* and allies, notes on; SHARPE, Ibis 1901, pp. 48 & 49.

Family LANIIDÆ.

- Gymnorhina*, a revision of the genus; HALL, P. Soc. Victoria xiv, pp. 1-9.
- Dryoscopus jacksoni*, n. sp., Mt. Elgon, Equat. Africa; SHARPE, Bull. B. O. C. xi, p. 57: *D. nandensis*, figured; JACKSON, Ibis 1901, pl. ii, fig. 1: *D. nyanza*, notes on; SHARPE, Ibis 1901, pp. 39 & 40: *D. malsacii erythræ* Neumann, is not subspecifically distinct; GRANT & REID, Ibis 1901, p. 638: *D. ruficeps kismayensis*, n. subsp., Kismayu, N.E. Africa; ERLANGER, Ornith. Monber. ix, p. 182.
- Laniarius castaneiceps* Sharpe = *Dryoscopus luehderi* Reichen.; SHARPE, Ibis 1901, p. 42: *L. murinus*, n. sp., Muhanga, German East Africa; REICHENOW, Ornith. Monber. ix, p. 101: *L. blanchoti*, in Abyssinia; GRANT & REID, Ibis 1901, p. 639: *L. starki*, new name proposed for the S.E. African form of *L. poliocephalus* Licht.; W. L. SCLATER, Ibis 1901, p. 153: *L. sulphureipectus suahelicus* (Neumann) = *Laniarius chrysogaster* (Swains.); SHARPE, Ibis 1901, pp. 42 & 43: *L. maraisi*, n. sp., Knysna, Cape Colony; W. L. SCLATER, Ibis 1901, pp. 183 & 184, pl. vi: *L. dohertyi*, n. sp., Nandi, Equat. Africa; ROTHSCCHILD, Bull. B. O. C. xi, p. 53: *L. turatii* from Portuguese Guinea; SALVADORI, Ann. Mus. Genova (2) xx, p. 771.
- Nilaus afer*, nesting habits; WITHERBY, Ibis 1901, pp. 251 & 252: *N. minor*, note on; SHARPE, Ibis 1901, p. 44.
- Pachycephala gutturalis*, its change of plumages; HALL, P. Soc. Victoria (2) xiii, pp. 19-22: *P. rufogularis* and *P. gutturalis*, note on the synonymy; id. Victorian Natural. xvii, pp. 176-179; *P. riedeli* Meyer, and *P. kebirensis* Meyer = *P. arctitorquis* Scl.; FINSCH, Notes Leyden Mus. xxii, p. 266: *P. riedeli* is ♀ of *P. arctitorquis*; HARTERT, Nov. Zool. viii, p. 171: *P. kebirensis* probably = *P. arctitorquis*; id. t. c. p. 171: *P. tiandwana*, n. sp., Tiandu Is., west of the Key Ids.; HARTERT, Bull. B. O. C. xi, p. 53: *P. lanioides*, female described; HALL, Victorian Natural. xviii, pp. 30 & 31.
- Pachycephalopsis armati* (De Vis), referred to the genus *Heteromyias* [q.v.]; SHARPE, Bull. B. O. C. xi, p. 60.
- Lanius excubitor*, figured; HERMAN, Aquila viii, Tab. vi, fig. 2: *L. borealis*, in New Brunswick; MOORE, Auk xviii, pp. 196 & 197: *L. algeriensis kanigi*, n. subsp., Canary Islands; HARTERT, Nov. Zool. viii, pp. 309 & 310: *L. ludovicianus* and allies, notes on the variations; STRONG, Amer. Natural. xxxv, pp. 271-298: *L. ludovicianus gambeli*, nesting habits; ATKINSON, Condor iii, pp. 9-11: *L. buryi*, n. sp., Yesh-bum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. ix, p. 39: = *L. fallax* Finsch; GRANT, Ibis 1901, p. 521: *L. marwitsi*, n. sp., W. Uebe District, German East Africa; REICHENOW, Ornith. Monber. ix, p. 90: *L. senator*, a winter visitor to Northern Haussaland; HARTERT, Nov. Zool. viii, p. 346: *L. paradoxus*, note on; SHARPE, P. Zool. Soc. London 1901, vol. ii, pl. xxxvi, fig. 2: *L. badius*, in Europe (Corsica, Sardinia), *L. collurio*, from Sardinia; KLEINSCHMIDT, Ornith. Monber. ix, pp. 168 & 169.

Family SITTIDÆ.

See HELLMAYR, C. E. (349).

- Sitta neumayeri* and *S. casia*, notes on; HELLMAYR, J. Ornith. 1901, pp. 185 & 186: *S. casia caucasica*, n. subsp., Terek district, N. Caucasus; REICHENOW, Ornith. Monber. ix, p. 53: *S. whiteheadi*, note on; KOENIG, J. Ornith. 1901, pp. 99-101.
- Neositta*, nom. emend. pro *Sittella* Swains. nec Rafin.; HELLMAYR, t. c. pp. 186 & 187.

Family PARIDÆ.

See HELLMAYR, C. E. (349).

Parus cæruleus degener, n. subsp., Fuerteventura and Lanzarote Islands; HARTERT, Nov. Zool. viii, p. 309: *P. aphrodite*, n. sp., Cyprus; MADARÁSZ, Termes. Füzetek xxiv, p. 272: *P. stejnegeri*, n. sp., Ishigaki, Liu Kiu Is.: BANGS, Bull. Mus. Harvard xxxvi, pp. 267 & 268: *P. atlas*, n. sp., Atlas Mts., Morocco; MEADE-WALDO, Bull. B. O. C. xii, p. 27: *P. lugubris graecus*, n. subsp., Balcan Peninsula; REISER, Ornith. Jahrb. xii, p. 216: *P. palustris*, nesting in West Lothian; GODFREY, Ann. Scott. Nat. Hist. 1901, p. 181: *P. salicarius*, in Sussex; BUTTERFIELD, Zoologist 1901, pp. 29 & 30: *P. communis tschusii*, n. subsp., Italy; HELLMAYR, Ornith. Jahrb. xii, pp. 110 & 111: *P. gambeli thayeri*, n. subsp., New Mexico; BIRTWELL, Auk xviii, pp. 165-167: *P. cristatus*, on the Tay; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1901, p. 116.

Lophophanes dichroides Przew., is distinct from *L. dichrous*; HELLMAYR, J. Ornith. Monber. ix, p. 179.

Aegithospiza, n. g., type *A. fringillinus* (Fischer and Reichen.); id. t. c. p. 171.

Penthornis, n. g., type *P. semilarvatus* (Salvad.); id. t. c. p. 170: *P. luzoniensis*, remarks on; id. t. c. pp. 171 & 172: *P. nehrkorni* (W. Blasius) = *P. luzoniensis* (Gm.); id. t. c. p. 171.

Acredula irbyi in France; BUREAU, C.R. Congr. Orn. III, pp. 309-311: *A. scula*, n. sp., Sicily; J. I. S. WHITAKER, Bull. B. O. C. xi, pp. 51 & 52.

Ægithaliscus pulchellus, figured; RIPPON, Ibis 1901, pl. xi, fig. 2.

Ægithalus punctifrons Sundev., is distinct from *Æ. capensis*; WITHERBY, Ibis 1901, pp. 243 & 244.

Regulus cristatus, 700 miles from land [Lat. 56° 15' N. Long. 31° 13' W.]; TRUMBULL, Zoologist 1901, pp. 423 & 424.

Poecile lugubris persicus Prazak [nec *Parus persicus* Blanford], renamed *Parus lugubris dubius*; HELLMAYR, J. Ornith. 1901, pp. 172 & 173: *P. major* and *P. blanfordi*, notes on; id. t. c. pp. 173 & 174: *P. pleskei pallescens*, n. subsp., Russia; id. t. c. p. 175: *P. salicaria neglecta*; ZARUDNY, Annuaire Mus. St. Petersb. vi, p. xx.

Semiparus, nom. emend. pro *Sittiparus* Oates nec Selys; HELLMAYR, J. Ornith. 1901, p. 171 note [= *Pseudominla* Oates (*Timeliidae*), 1894].

Suthora and *Scæworhynchus*, notes on these genera; id. t. c. pp. 183-185.

Family ZOSTEROPIDÆ.

FINSCH, Das Tierreich, Lief. 15 Zosteropidæ, pp. 1-56, text-figg. 1-32.

Zosterops kulambangrae, n. sp., Kulambangra Is., *Z. floridana*, n. sp., Florida Is., Solomon group; ROTHSCCHILD & HARTERT, Nov. Zool. viii, p. 180: *Z. jubaensis*, n. sp., Juba River, N.E. Africa; ERLANGER, Ornith. Monber. ix, p. 182: *Z. arabs*, n. sp., Yeshbum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. ix, p. 31: = *Z. abyssinica* Guér.; GRANT, Ibis 1901, p. 520: *Z. wallacei*, nom. emend. pro *Z. aurifrons* Auct. nec Heugl.; FINSCH, Tierreich, Lief. 15, p. 23: *Z. innominata*, nom. emend. pro *Z. meyeri* auct. nec Bonap.; id. t. c. p. 42: *Z. solomonensis*, nom. emend. pro *Z. olivaceus* auct. nec Linn.; id. t. c. p. 42: *Z. lutea*, nest and eggs described; HALL, Victorian Natural. xviii, p. 31.

Pseudozosterops, n. g., type *P. mülleri* (Hartl.); FINSCH, Tierreich, Lief. 15, pp. 46 & 47, figg. 28-30.

Family DICÆIDÆ.

- Dicæum solicitans*, n. sp., Java; HARTERT, Nov. Zool. viii, p. 52: *D. erythrorhynchum*, note on the nesting in Lucknow; JESSE, Ibis 1901, pp. 601 & 602.
Pardalotus punctatus, immature bird described; HALL, Victorian Natural. xviii, p. 21.

Family NECTARINIIDÆ.

- Nectarinia muelleri*, n. sp., Yeshbum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. ix, p. 38: is identical with *N. metallica* from N. E. Africa; GRANT, Ibis 1901, p. 520.
Arachnothera longirostris prillwitzii, n. sp., Java; HARTERT, Nov. Zool. viii, p. 51: *A. robusta uropygialis* Gray, from Java is a distinct race; id. t. c. p. 52.
Anthothreptes gabonica, described; SALVADORI, Ann. Mus. Genova (2) xx, p. 759.

Family MELIPHAGIDÆ.

- Myzomela eichhorni*, n. sp., Kulambangra Island; ROTHSCHILD & HARTERT, Nov. Zool. viii, p. 181: *M. dubia* (*M. melanocephala*, auct.) from the Solomon Islands, remarks on; iid. t. c. pp. 181 & 182.
Stigmatops notabilis, figured; FINSCH, Notes Leyden Mus. xii, pl. 4, fig. 4: *S. kebirensis*=*S. squamata* Salvad.; id. t. c. p. 270: *S. salvadorii*, distinct from *S. squamata*; HARTERT, Nov. Zool. viii, p. 171.
Ptilotis flavescens, eggs described; HALL, Victorian Natural. xviii, p. 32: nest described; id. t. c. p. 80: *P. cratitia*, young described; id. t. c. p. 21.
Myzantha lutea, nest and eggs described; HALL, t. c. p. 32.
Philemon kisserensis Meyer=*P. cineraceus* (Bp.); FINSCH, Notes Leyden Mus. xxii, p. 272.

Family CERTHIIDÆ.

- See HELLMAYR, C. E. (349).
Certhia familiaris harterti, n. subsp., Asia Minor; HELLMAYR, J. Ornith. 1901, p. 189: *C. familiaris* and allies, notes on; id. t. c. pp. 187 & 188:
C. familiaris zelotes, n. subsp., Tehama Co., California; OSGOOD, Auk xviii, pp. 182 & 183.
Salpornis salvadorii from the Gold Coast; ALEXANDER, Bull. B. O. C. xii, p. 11: *S. emini* and *S. salvadorii*, notes on; HELLMAYR, J. Ornith. 1901, p. 189.
Climacteris, notes on; id. t. c. pp. 189 & 190.

Family MNIOTILTIDÆ.

- Helminthophila bachmani*, rediscovered near Charleston, South Carolina; WAYNE, Auk xviii, pp. 274 & 275.
Dendraca auduboni, note on the nest and eggs; SILLOWAY, Condor iii, pp. 4 & 5, cum fig.: *D. occidentalis*, notes on; BARLOW, t. c., pp. 177-181, cum fig.: *D. kirtlandi* and *D. discolor*, in Canada; KELLS, Ottawa Natural. xiv, pp. 230-234: *D. cærulea*, a summer resident in Baltimore County, Maryland; KIRKWOOD, Auk xviii, pp. 137-142: *D. cærulescens*, sequence of plumages; STONE, t. c. p. 110: *D. nigrifrons* in Arizona; LOOMIS, t. c. p. 109.

Geothlypis trichas, at sea; ROBBINS, t. c. pp. 110 & 111: *G. trichas scirpicola*, n. subsp., Southern coast, district California; GRINNELL, Condor iii, p. 65: *G. trichas sinuosa*, n. subsp., San Francisco and district; id. t. c. p. 65: *G. trichas roscoe* is the correct name for the Southern Yellow-throat; PALMER, Auk xviii, pp. 197 & 198. Cf. CHAPMAN, t. c. p. 198.

Granatellus venustus, in Sinaloa; LOOMIS, t. c. p. 110.

Basileuterus leucoblepharus calus, n. sp., Paraguay; OBERHOLSER, P. Soc. Washington xiv, p. 188.

Family MOTACILLIDÆ.

Motacilla alba, details of migration; CLARKE, Rep. Brit. Ass. 1900, pp. 409-413: autumn Migration in Southern Shetland; CLARKE & LAIDLAW, Ann. Scott. Nat. Hist. 1901, pp. 7 & 8: in the South-east of Scotland; EVANS, t. c. pp. 12-15: *M. subpersonata*, n. sp., Rehamra, Morocco; MEADE-WALDO, Bull. B. O. C. xii, p. 27: *M. campestris*, at the Isle of Man in December; GRANT, Zoologist 1901, p. 69: *M. flava*, breeding in Sussex; BUTTERFIELD, Zoologist 1901, p. 389: in Nyasaland; SHELLEY, Ibis 1901, p. 168: *M. flava borealis* in the Kurische Nehrung; THIENEMANN, Ornith. Monber. ix, pp. 151 & 152: *M. boarula canariensis*, n. subsp., Canary Islands; HARTERT, Nov. Zool. viii, p. 322: *M. paradoxa*, in Southern Abyssinia; GRANT & REID, Ibis 1901, p. 631.

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Mirafra horsfieldi, young described; HALL, Victorian Natural. xviii, p. 21: *M. woodwardi*, n. sp., Western Australia; MILLIGAN, t. c. pp. 25 & 26: nest and eggs described; HALL, t. c. p. 80: *M. athi*, *M. angolensis*, and *M. occidentalis*, notes on; HARTERT, Bull. B. O. C. xi, p. 64: *M. marginata* Hawker = *M. cantillans* Blyth; GRANT & REID, Ibis 1901, p. 628: *M. fischeri*, in Abyssinia; iid. t. c. p. 628.

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- Iguana Cove, Albemarle Island; iid. t. c. p. 175: *G. heliobates*, n. sp., Albemarle and Narborough Islands, Galapagos; SNODGRASS & HELLER, t. c. p. 96: *G. harterti*, n. sp., Chatham Is., Galapagos; RIDGWAY, Bull. U. S. Nat. Mus. No. 50, p. 507.
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- Sporophila schistacea*, distinct from *S. grisea*; RIDGWAY, Bull. U. S. Nat. Mus. No. 50, p. 566.
- Cardinalis cardinalis somersii*, n. subsp., Bahamas; VERRILL, Amer. J. Sci. (4) xii, p. 65: *C. bermudianus*, n. sp., Bermuda; BANGS & BRADLEE, Auk xviii, pp. 256 & 257.
- Carduelis carduelis parva*, n. subsp., Madeira; v. TSCHUSI, Ornith. Monber. ix, p. 131.
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- Cannabina cannabina nana*, n. subsp., Madeira; v. TSCHUSI, Ornith. Monber. ix, pp. 130 & 131: *C. holboelli*, in Achill Island; COBURN, Bull. B. O. C. xii, p. 15.
- Acanthis cannabina meadewaldoi*, n. subsp., Tenerife; HARTERT, Nov. Zool. viii, p. 323: *A. linaria*, *A. l. rostrata*, *A. l. holboelli*, and *A. hornemanni exilipes*, in Montana; BISHOP, Auk xviii, p. 195: *A. linaria rostrata*, in Connecticut; id. t. c. p. 195.
- Linota linaria*, in Upper Clyde; GIBSON, Ann. Scott. Nat. Hist. 1901, p. 115: *L. rostrata*, in Barra; CLARKE, Ann. Scott. Nat. Hist. 1901, pp. 131-133: *L. rufescens*, nesting in Sussex; EASTWICK-FIELD, Zoologist 1901, pp. 315 & 316.
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- Passer montanus*, in Peeblesshire; LAIDLAW, Ann. Scott. Nat. Hist. 1901, p. 115: *P. domesticus*, deformed maxilla; BISHOP, Auk xviii, pp. 195 & 196, cum fig.: *P. domesticus buryi*, n. subsp., South Arabia; LORENZ & HELLMAYR, J. Ornith. 1901, pp. 233 & 234: is the Indian form of *P. domesticus*; GRANT, Ibis 1901, p. 520: *P. rufidorsalis* Brehm, is distinct from *P. domesticus*; WITHERBY, Ibis 1901, p. 246: *P. luteus*, note on; id. t. c. p. 247: *P. arcuatus*, figured; SETH-SMITH, Avicult. Mag. vii, pl. ii.
- Poliospiza flegeli*, ♀ described; HARTERT, Nov. Zool. viii, pp. 340 & 341.
- Serinus rendalli* is a Ploceine form (*Anomalospiza*, n. gen.); SHELLEY, Bull. B. O. C. xii, pp. 29 & 30.
- Carpodacus*, dichromatism in the genus; MCGREGOR, Condor iii, pp. 13 & 14: *C. mexicanus sonoriensis*, n. subsp., Sonora; RIDGWAY, Bull. U. S. Nat. Mus. No. 50, p. 135.
- Loria curvirostra*, note on; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1901, pp. 115 & 116: *L. curvirostra stricklandi*, in Nebraska; CAREY, Auk xviii, p. 109.
- Emberiza navigastra* Rüpp., is distinct from *E. flaviventris*; WITHERBY, Ibis 1901, p. 246.
- Emberiza melanocephala*, in Germany (Zwickau); RIEDEL, Monatsch. Ver. Schutze Vogelw. 1900, p. 488; Ornith. Monber. ix, p. 8: *E. luteola*, in Italy; MARTORELLI, Avicula v, p. 131; near Constantinople, BRAUN, Ornith. Monber. ix, pp. 71 & 72: *E. citrinella molessoni*, figured; POPHAM, Ibis 1901, pl. x: *E. cirrus*, notes on its habits near Constantinople; BRAUN, Ornith. Monber. ix, pp. 6 & 7.

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- Plectrophenax nivalis*, in Nottinghamshire; WHITAKER, Zoologist 1901, p. 158: in Heligoland; HARTLAUB, Ornith. Monber. ix, p. 91.
- Passerculus sandwichensis xanthophrys*, n. subsp., Kadiak Island; GRINNELL, Condor iii, pp. 21 & 22.
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An introduction to the study of the Family; PERKINS, Ibis 1901, pp. 562-585. Table of distribution, p. 574: Table of the genera, pp. 561-585.

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- Oreomanes fraseri* from Cuzco, C. Peru; BERLEPSCH, C.R. Congr. Orn. iii, p. 197.
- Controstrum lugens*, n. sp., Bolivia; BERLEPSCH, J. Ornith. 1901, pp. 82 & 83.
- Xenodacnis parina*, from Cuzco; BERLEPSCH, C.R. Congr. Orn. iii, p. 197.
- Dacnis berlepschi*, ♂ ad. described; ROTHSCCHILD & HARTERT, Bull. B. O. C. xi, pp. 44 & 45, 70 & 71: ♂ ♀ figured; HARTERT, Nov. Zool. viii, p. 371, pl. v, figg. 1 & 2.
- Cæreba cerinoclunis*, n. sp., San Miguel Isl., Panama; BANGS, P. New England Zool. Club ii, p. 52.
- Cyanocompsa sterea*, n. sp., Paraguay; OBERHOLSER, P. Soc. Washington xiv, p. 188.

Family TANAGRIDÆ.

- Procnias tersa*, note on; GOODFELLOW, Ibis 1901, pp. 458 & 459.
- Euphonia nigricollis*, in Matto Grosso; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 4: *E. xanthogastra brunneifrons*, n. subsp., Peru; CHAPMAN, Bull. Amer. Mus. xiv, p. 226: *E. fulvicrissa purpurascens*, n. subsp., N. W. Ecuador; HARTERT, Nov. Zool. viii, pp. 370 & 371.
- Iridophanes*, n. g. *I. pulcherrimus* (Sclater); RIDGWAY, P. Washington Ac. iii, p. 150.
- Chlorochrysa fulgentissima*, n. sp., Peru; CHAPMAN, Bull. Amer. Mus. xiv, p. 225: *C. hedwigæ*, n. sp., Peru; BERLEPSCH & STOLZMANN, Ibis 1901, pp. 716 & 717, pl. xv.
- Calliste emiliae*, figured; P. L. SCLATER, Ibis 1901, pl. xii, fig. 1: *C. johannæ*, figured; id. t. c. pl. xii, fig. 2: *C. sophiæ*, n. sp., Bolivia; BERLEPSCH, J. Ornith. 1901, pp. 83 & 84.
- Calospiza florida arcæi*, n. subsp., Panama; RIDGWAY, P. Washington Ac. iii, p. 149.

- Phainicotherapsis salvini peninsularis*, n. subsp., Yucatan; id. t. c. p. 150:
P. salvini discolor, n. subsp., Nicaragua; id. t. c. p. 150.
P. littoralis, n. sp., Tabasco, Mexico; NELSON, Auk xviii, p. 48.
Rhamphocelus dimidiatus isthmicus, n. subsp., Panama; RIDGWAY, P.
 Washington Ac. iii, p. 150: *R. limatus*, n. sp., San Miguel Island,
 Panama; BANGS, Auk xviii, pp. 31 & 32.
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 P. Washington Ac. iii, p. 149.
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 Peru; CHAPMAN, Bull. Amer. Mus. xiv, p. 227.
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 p. 188.

Family PLOCEIDÆ.

- Penthetriopsis humeralis*, n. sp., Mt. Elgon, Equat. Africa; SHARPE, Bull.
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Pyromelana franciscana pusilla, n. subsp., Lake Stefanie; HARTERT, Bull.
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Anomalospiza, n. g. Type *A. rendalli* (Tristr.); SHELLEY, Bull. B. O. C.
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Lagonosticta nigricollis, ♀ described; ALEXANDER, Bull. B. O. C. xii,
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Ploceus megarhynchus, validity of the species; FINN, Ibis 1901, pp. 29-32,
 pl. i, fig. A, summer plumage: fig. B, winter plumage.

Family ICTERIDÆ.

- Cassicus persicus*, nidification of; GOELDI, Bol. Mus. Para. iii, pp. 203-206.
Molothrus bonariensis, in Matto Grosso; SALVADORI, Boll. Mus. Torino xv,
 No. 378, p. 6.
Agelaius phoeniceus fortis, n. subsp., Western United States; RIDGWAY,
 P. Washington Ac. iii, p. 153: *A. phoeniceus neutralis*, n. subsp.,
 British Columbia and California; id. t. c. p. 153: *A. phoeniceus*
caurinus, n. subsp., British Columbia to Northern California; id. t. c.
 pp. 153 & 154.
Xanthocephalus, n. g. Type *X. flavus* (Gm.); id. t. c. p. 155.
Xanthocephalus xanthocephalus, in Connecticut; BISHOP, Auk xviii, p. 195.

- Amblyramphus holosericeus*, in MATTO GROSSO; SALVADORI, Boll. Mus. Torino xv, No. 378, p. 6.
- Sturnella magna*, at Rangeley, Maine; BREWSTER, Auk xviii, p. 194: *S. magna puralios*, n. subsp., San Sebastian, Colombia; BANGS, P. New England Zool. Club ii, pp. 55 & 56: *S. m. neglecta*, at Pueblo Co., Colorado, in winter; LOWE, Auk xviii, p. 276.
- Gymnomystax melanicterus*, nidification of; GOELDI, Bol. Mus. Para. iii, pp. 206-208.
- Icterus baltimore*, its song in captivity; SCOTT, Science (2) xiv, pp. 522-526: *I. virescens*, figured; DUBOIS, Synopsis Avium, pl. xi, fig. 2: *I. wagleri mexicanus*, n. subsp., Southern Mexico and Guatemala; RIDGWAY, P. Washington Ac. iii, p. 151: *I. gularis tamaulipensis*, n. subsp., Tamaulipas, E. Mexico; id. t. c. p. 152: *I. mesomelas taczanowskii*, n. subsp., Western Ecuador; id. t. c. p. 153: *I. cucullatus sennetti*, n. subsp., Rio Grande Valley, Texas; id. t. c. p. 152: *I. cucullatus duplexus*, n. subsp., Mujeres Island; NELSON, P. Soc. Washington xiv, p. 173: *I. cucullatus cozumelæ*, n. subsp., Cozumel Island; id. t. c. pp. 173 & 174.
- Scaphidurus major nelsoni*, n. subsp., Sonora, N. W. Mexico; RIDGWAY, P. Washington Ac. iii, pp. 151 & 152.
- Holquiscalus martinicensis*, n. sp., Martinique; id. t. c. p. 151.
- Pseudagelæus*, n. g. Type *P. imthurni* (Sclater); id. t. c. p. 155.

Family ORIOLIDÆ.

- Mimeta szalayii*, n. sp., German New Guinea; MADARÁSZ, Termes. Fuzetek xxiv, p. 76.
- Sphecotheres hypoleucus*, figured; FINSCH, Notes Leyden Mus. xxii, pl. 3.

Family DICRURIDÆ.

- Dicrurus kühni*, n. sp., Tenimber Islands; HARTERT, Nov. Zool. viii, p. 170: *D. ludwigi*, in Nyasaland; SHELLEY, Ibis 1901, pp. 588 & 589; a key to the Ethiopian species of *Dicrurus*, p. 590.

Family EULABETIDÆ.

- Gracula sinensis*, figured; DUBOIS, Synopsis Avium, pl. xi, fig. 1.
- Lamprotornis brevicauda*, note on; SHARPE, P. Zool. Soc. London 1901, vol. ii, pp. 621 & 622.
- Amydrus tristrami*, from S. Arabia; GRANT, Nov. Zool. viii, p. 54: *A. hadramaticus*, n. sp., Yeshbum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. ix, p. 30; iid. t. c. p. 39: = *A. tristrami* Scl.; GRANT, Ibis 1901, p. 519.
- Coccycolius iris*, notes on; HARTERT, Nov. Zool. viii, pp. 335 & 336.
- Buphaga erythrorhyncha*, in Nyasaland; SHELLEY, Ibis 1901, pp. 586 & 587.

Family STURNIDÆ.

- Sturnus vulgaris*, its migration; MORTENSEN, C.R. Congr. Orn. III, p. 312: curious nest; REBOUSSIN, t. c. p. 338: increase in England; HOWARD, Zoologist 1901, pp. 463-467: in Connecticut; BISHOP, Auk xviii, p. 194.
- Pastor roseus*, in Kent; EDWARDS, Zoologist 1901, p. 223.

Family PARADISEIDÆ.

- Loborhamphus*, n. gen., type *L. nobilis*, n. sp., Dutch New Guinea; ROTHSCCHILD, Bull. B. O. C. xii, p. 34.
Seleucidés ignotus × *Paradisea*, sp. (*finschi* or *augusta victoria*); REICHENOW, Ornith. Monber. ix, pp. 185 & 186.

Family CORVIDÆ.

- Corvus frugilegus*, distribution in Germany; MATSCHIE, Ornith. Monber. ix, pp. 18-22; RÖRIG, t. c. pp. 68-70; KOLLIBAY, t. c. pp. 81 & 82; MATSCHIE, t. c. pp. 88-90: (figg. 1 & 2), *C. cornix* (fig. 3), their utility or harmfulness; JABLONOWSKI, Aquila viii, pp. 214-275, Tab. iv: *C. corax* and its allies; HARTERT & KLEINSCHMIDT, Nov. Zool. viii, pp. 40-48: *C. bennetti*, n. sp., Western New South Wales; NORTH, Victorian Natural. xvii, p. 170: *C. latirostris*, from the Tenimber Ids., notes on; HARTERT, Nov. Zool. viii, pp. 173 & 174: *C. edithæ*, at Lake Rudolf; GRANT, Ibis 1901, p. 283: *C. brachyurus* C. L. Brehm = *C. affinis* Rüpp.; HARTERT & KLEINSCHMIDT, Nov. Zool. viii, p. 43. The following species of Ravens recognised, *Corvus corax principalis* Ridgw., *C. c. sinuatus* Ridgw., *C. c. varius* Brünn., *C. c. corax* L., *C. c. canariensis*, nom. nov. *C. c. hispanus*, nom. nov. *C. c. tingitanus* Irby, *C. c. thibetanus* Hodgs., *C. c. lawrencei* Hume, *C. c. umbrinus* Sander., *C. c. edithæ* Lort Phillips, *C. c. sibiricus*, *C. c. ussuriensis*, *C. c. kamtschaticus*, and *C. c. behringianus*, iid. t. c. pp. 40-48.
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Aphelocoma californica immanis, n. subsp., Willamette Valley, Oregon; GRINNELL, Auk xviii, p. 188.
Xanthura cyanodorsalis, figured; DUBOIS, Synopsis Avium pl. x, fig. 1: *X. cæruleocephala*, fig. 2.
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Podoces hendersoni and *P. biddulphi*, notes on; SCHALOW, J. Ornith. 1901, pp. 437-440.

IV. REPTILIA AND BATRACHIA.

BY

G. A. BOULENGER, F.R.S.

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III. REFERENCES ARRANGED SYSTEMATICALLY.

REPTILIA AND BATRACHIA.

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R. KRAUSE, *Anat. Anz.* xix, pp. 49-59, figg., writes on the origin of the ductus endolymphaticus.

M. JAQUET, *Bull. Soc. Bucarest* x, pp. 250-263, writes on the sympathetic nervous system.

P. STEPHAN, in his work "De l'hermaphroditisme chez les Vertébrés," remarks on the known cases of hermaphroditism in Reptiles and Batrachians.

G. TORNIER, *Zool. Anz.* xxiv, pp. 488-504, figg., records further cases of teratology, natural and artificially produced, in Lizards and Batrachians.

E. SCHENKEL, *Verh. Ges. Basel* xiii, pp. 142-199, reports on additions made to the herpetological collection of the Basle Museum since January 1892.

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- Lepidodactylus lugubris*, D. & B. Notes on the habits and reproduction by SCHNEE, Zeitschr. Naturw. lxxiv, p. 278.
- Woodworthia*, g. n., near *Hoplodactylus*, Fitz., for *W. digitata*, sp. n., GARMAN, Bull. Mus. Harvard xxxix, p. 4, pl. i, fig. 2, New Zealand.
- Gecko japonicus*, D. & B. Note by MÉHELY, Zool. Ergebn. Zichy Forschungsreise, p. 44, pl. vi, figg. 1 & 2.
- Tarentola delalandii*, D. & B., recorded from Togoland by TORNIER, Arch. Naturg. 1901, Beih. p. 71; *T. mauritanica*, vars. nn. *sahare*, p. 77, pl. iii, fig. 1, *gracilis*, p. 77, *atlantica*, p. 78, pl. iii, fig. 2, and *lissoides*, p. 79, pl. iv, fig. 1, DOUMERGUE, Exp. Oranie, Algeria.
- Pachydactylus quadriocellatus*, Ptrs. = *Phelsuma lineatum*, Gray, TORNIER, Zool. Anz. xxiv, p. 64.
- Phelsuma laticauda*, Bttgr. On its habits in captivity: P. DE GRIJS, Zool. Garten xlii, p. 105; *P. androyense*, sp. n., MOCQUARD, Bull. Mus. Paris 1901, p. 252, Madagascar.
- Sphaerodactylus notatus*, Baird, and *macrolepis*, Gthr., figured by MEERWARTH, Mt. Mus. Hamburg xviii, 2, pl. i, figg. 6-8; *H. macrolepis*, var. n. *monensis*, id. ibid. p. 20, Mona.

PYGOPODIDÆ.

- Delma reticulata*, sp. n., GARMAN, Bull. Mus. Harvard xxxix, p. 5, pl. ii, fig. 1, Queensland.

AGAMIDÆ.

- Calotes varicolor*, Daud. Note on the habits by LAIDLAW, P. Z. S. 1901, i, p. 308. Observed in captivity by P. DE GRIJS, Zool. Garten xlii, p. 107.
- Phrynocephalus frontalis*, Strauch, described and figured by MÉHELY, Zool. Ergebn. Zichy Forschungsreise, p. 47, pl. vi, figg. 3-8.
- Phrygnathus lesueurii*, D. & B. On its habits in captivity: P. DE GRIJS, Zool. Garten xlii, p. 100.
- Liolepis bellii*, Gray. Note on the habits by LAIDLAW, P. Z. S. 1901, i, p. 308.
- Uromastix (Aporoscelis) benti*, And., figured by ANDERSON, P. Z. S. 1901, ii, pl. xv; *U. simonyi*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1899, p. 143, S. Arabia = *U. benti*, And., id. ibid. p. 162.

IGUANIDÆ.

- Anolis irregularis*, sp. n., WERNER, Verh. Ges. Wien li, p. 594, Ecuador; *A. biauiritus*, sp. n., MEERWARTH, Mt. Mus. Hamburg xviii, 2, p. 23, pl. i, figg. 3-5, San Domingo.
- Hoplurus grandidieri*, sp. n., MOCQUARD, Bull. Mus. Paris 1900, p. 346, Madagascar.
- Tropidurus torquatus*, Wied. On the eggs: GÖLDI & HAGMANN, Zool. Jahrb. Syst. xiv, p. 581, fig.; *T. theresia*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1901, p. 195, Lima, Peru.
- Stenocercus variabilis*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 546, Bolivia.

- Liolaemus annectens*, sp. n., BOULENGER, l. c. p. 546, Peru.
Lioccephalus vittatus, Hallow. On its habits in captivity: P. DE GRIJS, Zool. Garten xlii, p. 72; *L. lineogularis*, sp. n., WERNER, Abh. Mus. Dresden ix, No. 2, p. 3, Peru; *L. haenschi* and *angulifer*, spp. nn., WERNER, Verh. Ges. Wien li, p. 595, Ecuador; *L. virescens*, sp. n., STEJNEGER, P. U. S. Mus. xxiii, p. 471, Green Cay, Bahamas; *L. rhodogaster* and *scapularis*, spp. nn., BOULENGER, l. c. pp. 546 & 547, Peru.
Urocentrum meyeri, sp. n., WERNER, Abh. Mus. Dresden ix, No. 2, p. 4, Peru.
Iguana tuberculata, Laur. Note on the habits: GÖLDI & HAGMANN, Zool. Jahrb. Syst. xiv, p. 588. Observed in captivity by P. DE GRIJS, Zool. Garten xlii, p. 75, and WERNER, t. c. p. 316.
Ctenosaura bakeri, sp. n., STEJNEGER, t. c. p. 467, Utila Id., Honduras.
Phrynosoma hernandesi, Gir., recorded from an altitude above 10,000 feet, in New Mexico, by T. D. A. COCKERELL, Science (2) xiv, p. 111.

ANGUIDÆ.

- Macrogongylus*, g. n., WERNER, Zool. Anz. xxiv, p. 298; *M. brauni*, sp. n., id. ibid. p. 299, fig. Hab. — ? [= *Diploglossus occiduus*, Shaw.—REC.].

VARANIDÆ.

- Notes on the habits of *Varanus salvator* and *V. nebulosus*: LAIDLAW, P. Z. S. 1901, i, p. 309; *V. dumerili*, Gray. Note by CARRUCCIO, Boll. Soc. zool. Ital. (2) i, p. 104; *V. dirus*, De Vis (foss.). Maxillary described and figured by DE VIS, Ann. Queensland Mus. 1900, No. 5, p. 6, pl. iii.

TEIIDÆ.

- Centropyx viridistriga*, Blgr. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 184.
Ameiva surinamensis, Laur. Note by STEJNEGER, P. U. S. Mus. xxiv, p. 183, figg. On the eggs: GÖLDI & HAGMANN, Zool. Jahrb. Syst. xiv, p. 585, fig.; *A. chrysolema*, Cope, pl. i, fig. 14, *riisii*, R. & L., pl. ii, figg. 7, 9, and *alboguttata*, Blgr., pl. ii, figg. 6, 8, figured by MEERWARTH, Mt. Mus. Hamburg xviii, 2.
Cnemidophorus centropyx, Stdr. Note by WERNER, Abh. Mus. Dresden ix, No. 2, p. 4.
Prionodactylus ocellifer, sp. n., WERNER, Verh. Ges. Wien li, p. 596, Ecuador.
Euspondylus simonsii, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 549, Peru.
Cophias peruanus, sp. n., WERNER, Abh. Mus. Dresden ix, No. 2, p. 5, fig., Peru.

AMPHISBENIDÆ.

- Amphisbæna leucura*, D. & B. Note by TORNIER, Arch. Naturg. 1901, Beih. p. 73; *A. polygrammica*, sp. n., WERNER, Abh. Mus. Dresden ix, No. 2, p. 5, fig., Peru.
Lepidosternum boulengeri, Bttgr. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 185.
Agamodon arabicus, sp. n., ANDERSON, P. Z. S. 1901, ii, p. 140, pl. xiv, fig. 2, S. Arabia.

LACERTIDÆ.

- Lacerta agilis*, L. On its occurrence in the North of England: T. A. COWARD, Zoologist (4), v, p. 355; *L. agilis*, L., var. *exigua*, Eichw. Note by MÉHELY, Zool. Ergebn. Zichy Forschungsreise, p. 51, pl. vii; *L. muralis*, var. *depressa*, Cam. Notes, id. ibid. p. 54; *L. depressa*, Cam. = *L. muralis*, Laur., DERIUGIN, Annuaire Mus. St. Petersb. vi, p. 94; *L. galloti*, D. & B. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 186; *L. perspicillata*, D. & B., var. n. *guichenoti*, DOUMERGUE, Erp. Oranie, p. 128, pl. viii, fig. 10, Prov. Oran, Algeria; *L. anatolica*, sp. n., WERNER, Anz. Ak. Wiss. 1900, No. xxv, Asia Minor.
- Latastia hardeggeri*, Stdr. Note by ANDERSON, P. Z. S. 1901, ii, p. 145.
- Acanthodactylus pardalis*, Licht., var. n. *spinicauda*, DOUMERGUE, op. cit. p. 169, pl. xi, fig. 6, Prov. Oran, Algeria; *A. savignyi*, And., var. n. *oranensis*, id. ibid. p. 176, pl. xii, figg. 1-3, Prov. Oran, Algeria; *A. vulgaris*, D. & B., var. nn. *tingitanus*, p. 187, pl. xiv, figg. 5 & 6, Morocco, *mauritanicus*, p. 189, pl. xiv, figg. 1-4, Oran, and *ksourensis*, p. 193, pl. xiv, fig. 7, Prov. Oran, id. ibid.; *A. blanci*, sp. n., id. ibid. p. 184, pl. xiii, figg. 1-5, Tunisia.
- Eremias brencleyi*, Gthr. Note by MÉHELY, op. cit. p. 56; *E. nitida*, Gthr. On specimens from Togoland: TORNIER, Arch. Naturg. 1901, Beih. p. 73; *E. guichenoti*, sp. n., DOUMERGUE, op. cit. p. 200, pl. xv, fig. 2, Algeria [= *E. guttulata*, Licht.—REC.]; *E. bernouillii*, sp. n., SCHENKEL, Verh. Ges. Basel xiii, p. 187, fig., Palmyra.

GERRHOSAURIDÆ.

- Gerrhosaurus major*, A. Dum., var. n. *zechi*, TORNIER, Arch. Naturg. 1901, Beih. p. 74, fig., Togoland, W. Africa.
- Zonosaurus longicaudatus*, sp. n., MOCQUARD, Bull. Mus. Paris 1900, p. 347, Madagascar.

SCINCIDÆ.

- Mabuia maculilabris*, Gray, *perroteti*, D. & B. (of which *M. raddonii*, Gray, is regarded as the young), *quinquetæniata*, Licht., and *varia*, Ptrs. Notes by TORNIER, Arch. Naturg. 1901, Beih. pp. 81-86; *M. brevicollis*, Wgm. Note by ANDERSON, P. Z. S. 1901, ii, p. 146; *M. quinquecarinata*, Werner, redescribed by SCHENKEL, Verh. Ges. Basel xiii, p. 189; *M. benitensis*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 15, Gaboon [= *M. raddonii*, Gray.—REC.].
- Lygosoma smaragdinum*, Less. Note by WERNER, Verh. Ges. Wien li, p. 609; *L. cyanurum*, Less. Notes on the habits by SCHNEE, Zeitschr. Naturw. lxiv, p. 273; *L. cyanurum*, Less., var. n. *schauslandi*, WERNER, Zool. Jahrb. Syst. xiv, p. 384, Molokai, Hawaiian Ids.; *L. melanostictum*, Blgr. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 190; *L. simulans*, Vaill. Note by TORNIER, Arch. Naturg. 1901, Beih. p. 86; *L. kuekenthali*, Bttgr., p. 342, fig. 1, *sores*, p. 343, fig. 2, *mentovarium*, p. 345, fig. 4, and *brevipes*, p. 346, fig. 3, described and figured by BOETTGER, Abh. Senckenb. Ges. xxv, pl. xiv; *L. floweri*, sp. n., LAIDLAW, P. Z. S. 1901, i, p. 310, Gunong Inas, Malay Peninsula; *L. ceratum* and *atromaculatum*, spp. nn., GARMAN, Bull. Mus. Harvard xxxix, pp. 7 & 8, Queensland; *L. (Hinulia) annamiticum*, sp. n., BOETTGER, Ber. Senckenberg. Ges. 1901, p. 47, Annam; *L. (Lirolepisma) microcerum*, sp. n., id. ibid. p. 49, Annam; *L. (Lirolepisma) pagenstecheri*, sp. n., LINDHOLM, in LAMPE, Jahrb. nassau. Ver. liv, p. 214, pl. iii, figg. 3-5, S. Australia.

- Ablepharus heteropus*, p. 9, Queensland, *virgatus*, p. 10, Queensland, and *heterurus*, p. 11, Gilbert Ids., spp. nn., GARMAN, Bull. Mus. Harvard xxxix.
- Eumeces algeriensis*, Ptrs., var. n. *meridionalis*, DOUMERGUE, Erp. Oranie, p. 216, pl. xvi, fig. 3, Prov. Oran and Morocco; *E. kishinouyei*, sp. n., STEJNEGER, P. Soc. Washington xiv, p. 190, Yaye-yama Group, Loo Choo Ids.
- Chalcides viridanus*, Gravh. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 192; *C. ocellatus*, L., var. n. *parallelus*, DOUMERGUE, op. cit. p. 227, pl. xviii, fig. 2, Oran, Algeria; *C. bottegii*, Blgr., var. n. *thierryi*, TORNIER, Arch. Naturg. 1901, Beih. p. 87, Togoland, W. Africa.
- Grandidierina lineata*, sp. n., MOCQUARD, Bull. Mus. Paris 1901, p. 252, Madagascar.
- Hakaria*, subg. n. for *Sepsina simonyi*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1899, p. 161, Socotra [= *Parachalcides socotranus*, Blgr.—REC.].
- Melanoseps*, Blgr. *Herpetosaura occidentalis*, Ptrs., referred to this genus by TORNIER, Zool. Anz. xxiv, p. 61.

ANELYTROPIDÆ.

- Typhlosaurus lineatus*, Blgr. Note by LINDHOLM in LAMPE, Jahrb. nassau. Ver. liv, p. 217.

RHIPTOGLOSSA.

- Chamaleon grandidieri* and *fallax*, spp. nn., MOCQUARD, Bull. Mus. Paris 1900, p. 345, Madagascar; *C. xenorhinus* and *johnstoni*, spp. nn., BOULENGER, P. Z. S. 1901, ii, pp. 135 & 136, pls. xii & xiii, Mt. Ruwenzori, E. Africa.
- Brookesia dentata*, sp. n., MOCQUARD, t. c. p. 345, Madagascar.

DOLICHOSAURIA.

- Opetiosaurus*, g. n., type of a new family, *Opetiosauridae*, related to the *Varanidae* but with the dentition of the *Mososauridae*, for *O. buccichi*, sp. n., KORNHUBER, Verh. geol. Reichsanst. 1901, pp. 147–153, and Abh. geol. Reichsanst. xvii, No. 5, 24 pp., 3 pls., Lower Cretaceous, Lesina, Dalmatia.—Remarks by GORJANOVIC-KRAMBERGER, Verh. geol. Reichsanst. 1901, p. 271.

OPHIDIA.

- E. LAGUESSE, Arch. anat. micr. iv, pp. 157–218, figg., pl. v., writes on the structure of the pancreas in some Snakes.
- E. BALLOWITZ, Verh. Anat. Ges. 1901, pp. 80–88, figg., writes on the fate of the primitive mouth in *Tropidonotus natrix* and *Vipera berus*. The same, Zeitschr. wiss. Zool. lxx, pp. 675–732, figg., pls. xxix–xxxiii, has a memoir on the Gastrulation in *Tropidonotus natrix*.
- U. GERHARDT, Anat. Anz. xx, pp. 241–261, figg., has a paper on the Gastrulation of *Tropidonotus natrix*.
- H. MARTIN, Bull. Soc. zool. France xxvi, p. 76, figg., remarks on an anophthalmous monstrous embryo of *Vipera aspis*.
- J. PELLEGRIN, C.R. Soc. Biol. liii, pp. 119 & 120, has observations on the duration of life and the loss of weight in fasting Snakes in the Paris menagerie.

- G. LEIGHTON, Zoologist (4) v, p. 301, remarks on the sloughing in Snakes, recording the observations of W. J. CLARKE on a *Python molurus* in confinement.
- L. LAUNOY, Bull. Mus. Paris 1901, pp. 122 & 123, remarks on the chemical nature of the secretion of the salivary glands in *Zamenis gemonensis*.
- B. AUCHÉ & LOUIS VAILLANT, C.R. Soc. Biol. liii, p. 756, have made experiments on the alteration of the blood of the guinea-pig through the bite of poisonous Snakes.

TYPHLOPIDÆ.

- Typhlops polygrammicus*, Schleg. On a specimen from Java: VAN LIDTH DE JEUDE, Notes Leyden Mus. xxiii, p. 32; *T. decorsei*, sp. n., MOCQUARD, Bull. Mus. Paris 1901, p. 255, Madagascar; *T. erycinus*, sp. n., WERNER, Verh. Ges. Wien li, p. 611, fig., New Guinea.

GLAUCONIIDÆ.

- Glauconia albifrons*, Wagl., var. n. *rubrolineata*, WERNER, Abh. Mus. Dresden ix, No. 2, p. 6, Peru; *G. leperi*, sp. n., BOULENGER, Ann. Mus. Congo Zool. (1) ii, p. 8, pl. iii, fig. 2, Zambi, Congo.

BOLIDÆ.

- Nardoana*, n. n. for *Nardoa*, Gray, 1842, nec 1840, C. BERG, Comun. Mus. Buenos Aires i, p. 289.
- Gigantophis*, g. n., near *Python*, for *G. garatini*, sp. n. (foss.), ANDREWS, Geol. Mag. (2) Dec. iv, viii, p. 438, fig. 1, Eocene, Egypt.
- Palæopython sardus*, sp. n. (foss.), PORTIS, Boll. Soc. geol. Ital. xx, p. 247, fig., Miocene, Sardinia.
- Ungalia maculata*, Bibr. On its habits in captivity: P. DE GRILS, Zool. Garten xlii, p. 33; *U. semicincta*, Ptrs. Note by WERNER, Verh. Ges. Wien li, p. 635; *U. paucisquamis*, sp. n., SCHENKEL, Verh. Ges. Basel xiii, p. 154, Hab. ?; *U. brasiliensis*, sp. n., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 4, pl. i, fig. 1, Brazil.
- Epicrates angulifer*, Bibr. Note by WERNER, Verh. Ges. Wien li, p. 635; *E. striatus*, Fisch. = *E. angulifer*, Bibr. var., MEERWARTH, Mt. Mus. Hamburg xviii, 2, p. 5; *E. subflavus*, sp. n., STEJNEGER, P. U. S. Mus. xxiii, p. 469, Jamaica.
- Corallus*, Daud. STEJNEGER, op. cit. xxiv, p. 184, proposes to substitute the name *Boa* for this genus; *C. ruschenbergii*, Cope, head figured, id. ibid. p. 185, figg.
- Calabaria reinhardti*, Schleg. Note by TORNIER, Zool. Anz. xxiv, p. 63.

PALÆOPHIIDÆ.

- Mæriophis*, g. n., near *Palæophis*, for *M. schweinfurthi*, sp. n. (foss.), ANDREWS, Geol. Mag. (2) Dec. iv, viii, p. 438, fig., Eocene, Egypt.

ILYSIIDÆ.

- Anomochilus*, n. n. for *Anomalochilus*, Jeude, nec Blanchard, C. BERG, Comun. Mus. Buenos Aires i, p. 289.
- Dinilysia*, g. n., allied to *Ilysia*, for *D. patagonica*, sp. n. (foss.), A. S. WOODWARD, P. Z. S. 1901, i, p. 176, pl. xx, Red Sandstone of Neuquen, Patagonia.

COLUBRIDÆ.

Aglyphæ.

- Xenochrophis viperinus*, sp. n., SCHENKEL, Verh. Ges. Basel xiii, p. 155, Sumatra.
- Tropidonotus natriz*, L. Observed to eat mammals and birds by C. M. ROGERS, Nature ltv, p. 31. On great numbers of eggs and young found in a house in Wales: LEIGHTON, Zoologist (4) v, p. 25. On an albino specimen: P. DE GRIJS, Zool. Garten xlii, p. 66; *T. himalayanus*, Gthr., recorded from Burma by F. WALL & G. H. EVANS, J. Bombay Soc. xiii, p. 537; *T. punctiventris*, Bttgr., p. 353, fig. 6, and *kalmahericus*, Bttgr., p. 354, fig. 5, described and figured by BOETTGER, Abh. Senckenb. Ges. xxv, pl. xv.
- Helicops polylepis*, Gthr. Note by WERNER, Verh. Ges. Wien li, p. 636.
- Idiophis*, g. n., MOCQUARD, Bull. Mus. Paris 1901, p. 252; *I. vaillanti*, sp. n., id. t. c. p. 253, Madagascar.
- Gonionotophis granti*, Gthr. Note by WERNER, Verh. Ges. Wien li, p. 636.
- Pseudoboodon albopunctatus* and *brevicaudatus*, spp. nn., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, pp. 6 & 8, pl. i, figg. 2-4, Cameroon [= *Bothrolycus ater*, Gthr.—REC.].
- Simocephalus phylllophis*, sp. n., WERNER, Zool. Anz. xxiv, p. 301, fig., Cameroon.
- Diaphorolepis wagneri*, Werner, redescribed by WERNER, Verh. Ges. Wien li, p. 597.
- Lycodon albofuscus*, D. & B. Note by WERNER, Verh. Ges. Wien li, p. 636.
- Dryocalamus davisonii*, Blanf. Note by WERNER, t. c. p. 637.
- Zamenis rhodorhachis*, Jan. Note by ANDERSON, P. Z. S. 1901, ii, p. 149; *Z. constrictor*, L. Note on the habits by E. E. RAMSEY, P. Indiana Ac. 1900, p. 223.
- Bascanion anthonyi*, sp. n., STEJNEGER, P. U. S. Mus. xxiii, p. 715, Clarion Id., W. coast of Mexico.
- Lytrotychus diadema*, D. & B., var. n. *hirouzii*, DOUMERGUE, Erp. Oranie, p. 269, pl. xx, fig. 5, Prov. Oran, Algeria.
- Phrynonax lyoni*, sp. n., STEJNEGER, P. U. S. Mus. xxiv, p. 185, fig., Venezuela.
- Chlorophis carinatus*, sp. n., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 9, Cameroon.
- Thrasops splendens*, sp. n., ANDERSSON, t. c., p. 11, pl. i, fig. 8, Cameroon [= *Rhamnophis ethiops*, Gth.—REC.].
- Leptophis liocercus*, Wied. Head figured by STEJNEGER, P. U. S. Mus. xxiv, p. 187, figg.; *L. mexicanus*, D. & B. On its habits in captivity: P. DE GRIJS, Zool. Garten xlii, p. 68; *L. flagellum*, sp. n., ANDERSSON, t. c., p. 13, pl. ii, figg. 12-14, Brazil.
- Dendrophis bifrenalis*, Blgr. Note by WERNER, Verh. Ges. Wien li, p. 637.
- Coluber guttatus*, L. On its habits in captivity: P. DE GRIJS, Zool. Garten xlii, p. 71; *C. oxycephalus*, Boie. On colour variations: SHELFORD, J. Straits Asiat. Soc. 1901, p. 71; *C. subocularis*, sp. n., A. E. BROWN, P. Ac. Philad. 1901, p. 492, fig., pl. xxix, W. Texas.
- Aporophis lineatus*, L. On a colour-variety: ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 21; *A. lineatus*, var. n. *meridionalis*, SCHENKEL, Verh. Ges. Basel xiii, p. 160, Paraguay.
- Liophis atahuathpa*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1901, p. 195, W. Ecuador [= *Rhadinea undulata*, Wied.—REC.].
- Urotheca lateristriga*, Berth. Note by ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 22. *U. coronata*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1901, p. 196, W. Ecuador [= *U. lateristriga*, Berth.—REC.].

- Coronella doliata*, L. On its habits in captivity : P. DE GRUIJS, Zool. Garten xlii, p. 36.
- Simotes splendidus*, Gthr. (?). On a Burmese specimen : F. WALL & G. H. EVANS, J. Bombay Soc. xiii, p. 537.
- Prosymna bocagii*, Blgr., figured by BOULENGER, Ann. Mus. Congo, Zool. (1) ii, pl. iii, fig. 4.
- Arrhyton quenselii*, sp. n., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 15, pl. i, figg. 5-7, Hab. ?
- Contia aestiva*, L. Note by ANDERSSON, t. c. p. 22 ; *C. nuchalis*, sp. n., SCHENKEL, Verh. Ges. Basel xiii, p. 162, fig., N. America.
- Grayia fasciata*, sp. n., BOULENGER, Ann. Mus. Congo, Zool. (1) ii, p. 9, pl. iii, fig. 3, S.W. of L. Tanganyika, = *G. tholloni*, Mocq., id. t. c. p. 17.
- Tropidodipsas fasciata*, Gthr. Note by WERNER, Verh. Ges. Wien li, p. 638 ; *T. longicaudata*, sp. n., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 17, pl. ii, figg. 9-11, Brazil.
- Atractus torquatus*, D. & B., var. n. *resplendens*, WERNER, Verh. Ges. Wien li, p. 598, Ecuador.
- Agrophis saravacensis*, sp. n., SHELFORD, Ann. Nat. Hist. (7) viii, p. 516, Borneo.
- Idiopholis everetti*, sp. n., SHELFORD, t. c. p. 517, Borneo.
- Calamorphabidium kuekenthali*, Bttgr., described and figured by BOETTGER, Abh. Senckenb. Ges. xxv, p. 360, pl. xv, fig. 7.
- Stilosoma extenuatum*, Brown. Note by WERNER, Verh. Ges. Wien li, p. 638.
- Stylophis*, n. n. for *Stilosoma*, A. E. Brown nec Solier, C. BERG, Comun. Mus. Buenos Aires i, p. 290.
- Calamaria indragirica* and *mecheli*, spp. nn., SCHENKEL, Verh. Ges. Basel xiii, pp. 164 & 165, figg., Sumatra ; *C. pfefferi*, sp. n., STEJNEGER, P. Soc. Washington xiv, p. 191, Miyako Shima, Loo Choo Ids. ; *C. bungaroides*, sp. n., WERNER, Zool. Anz. xxiv, p. 300, Hab. ?
- Dasypletis scabra*, L. On the egested egg-shell : HOWES, Nature lxxiii, p. 326, fig.

Opisthoglyphæ.

- Cerberus rhynchops*, Schn. Notes on the habits by F. WALL & G. H. EVANS, J. Bombay Soc. xiii, p. 612. On its habits in captivity : P. DE GRUIJS, Zool. Garten xlii, p. 37.
- Disurostus*, n. n. for *Eurostus*, D. & B. nec Dallas, C. BERG, Comun. Mus. Buenos Aires i, p. 290.
- Geodipsas mapanjiensis*, n. sp., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 19, pl. ii, fig. 15, Cameroon.
- Langaha alluaudi*, sp. n., MOCQUARD, Bull. Mus. Paris 1901, p. 253, Madagascar.
- Eleirodipsas colubrina*, Schleg. On its habits in captivity : P. DE GRUIJS, Zool. Garten xlii, p. 35.
- Stenophis arctifasciatus*, D. & B. Note by WERNER, Verh. Ges. Wien li, p. 638.
- Tarbophis fallax*, Fleischm. On its habits : KAMMERER, Zool. Garten xlii, p. 178 ; J. BERG, t. c. p. 188.
- Lycognathus rhombeatus*, Ptrs. Note by WERNER, Verh. Ges. Wien li, p. 638.
- Dipsadomorphus multimaculatus*, Boie. On its habits in captivity : F. WALL, J. Bombay Soc. xiii, p. 534.
- Himantodes elegans*, Jan = *H. cenchoa*, L., WERNER, Abh. Mus. Dresden ix, No. 2, p. 7.

- Leptodira nycthemera*, sp. n., WERNER, Verh. Ges. Wien li, p. 598, Ecuador ;
L. duchemii, sp. n., BOULENGER, Ann. Mus. Congo, Zool. (1) ii, p. 10, pl. iv, fig. 1, Upper Congo.
- Oxyrhopus bitorquatus*, Gthr., and *O. fitzingeri*, Tsch. Notes by WERNER, Abh. Mus. Dresden ix, No. 2, p. 8; *O. carinatus*, Schn. Note by ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 23; *O. maculatus*, Blgr. = *O. doelia*, Daud. Id. t. c. p. 22; *O. dolatus*, D. & B., *semicinctus*, Cope, and *neuwiedii*, D. & B. Remarks, and figures of the head, by STEJNEGER, P. U. S. Mus. xxiv, pp. 187-189, figg.
- Pseudoboa robinsoni*, sp. n., STEJNEGER, l. c. p. 190, figg., Venezuela.
- Paroxyrhopus*, g. n., near *Oxyrhopus*, SCHENKEL, Verh. Ges. Basel xiii, p. 168; *P. reticulatus*, sp. n., id. ibid. p. 169, fig., Paraguay.
- Tachymenis peruviana*, Wgm., var. n. *dorsalis*, WERNER, Abh. Mus. Dresden ix, No. 2, p. 9, Peru.
- Philodryas ternetzi*, sp. n., SCHENKEL, t. c. p. 170, fig., Paraguay.
- Celopeltis monspessulana*, Herm. Observed to feed on other snakes : MINGAUD, Bull. Soc. Nimes xxviii, p. xxxii.
- Pseammophis sibilans*, L., var. n. *tumbensis*, SCHENKEL, t. c. p. 172, Tumbo Id., W. Africa.
- Dryophis mycterizans*, L., and *prasinus*, L. On their habits in captivity : P. DE GRJIS, Zool. Garten xlii, pp. 39 & 65; J. BERG, t. c. p. 204, fig.
- Oxybelis acuminatus*, Wied. Head figured by STEJNEGER, P. U. S. Mus. xxiv, p. 191, figg.
- Erythrolamprus fissidens*, Gthr. Note by ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 23.
- Apostolepis assimilis*, Reinh. Note by WERNER, Verh. Ges. Wien li, p. 639.
- Elapomorphus trilineatus*, Blgr. Note by WERNER, id. t. c. p. 639.
- Miodon collaris*, Ptrs. and *M. notatus*, Ptrs. = *M. gabonensis*, A. Dum., ANDERSSON, Bih. Svenska Ak. xxvii, iv, No. 5, p. 23.
- Aparallactus ubangensis*, Blgr., figured by BOULENGER, Ann. Mus. Congo, Zool. (1) ii, pl. iv, fig. 2; *A. flavitorques*, sp. n., id. ibid. pp. 11, pl. iv, fig. 3, Kassai, Congo.

Proteroglyphæ.

- Distira orientalis*, sp. n., STEJNEGER, P. Soc. Washington xiv, p. 191, Okinawa Shima, Loo Choo Ids.
- Denisonia vagrans*, sp. n., GARMAN, Bull. Mus. Harvard xxxix, p. 13, Dunk Id., Queensland.
- Naia*, Laur. On the African species : BETHENCOURT FERREIRA, J. Sci. Lisb. (2) vi, p. 129; *N. haie*, L., on its habits in captivity : KAMMERER, Zool. Garten xlii, p. 176; *N. tripudians sumatrana*, F. Müll. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 175.
- Merremia*, n. n. for *Sepedon*, Merr. nec Latr., C. BERG, Comun. Mus. Buenos Aires i, p. 291.
- Elaps tschudii*, Jan, *spixi*, Wagl., and *marcgravi*, Wied. Notes by WERNER, Abh. Mus. Dresden ix, No. 2, p. 11; *E. spixii*, Wagl. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 176; *E. steindachneri*, sp. n., WERNER, Verh. Ges. Wien li, p. 599, Ecuador.

AMBLYCEPHALIDÆ.

- Amblycephalus malaccanus*, Ptrs. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 177.
- Leptognathus*, D. & B. This name is preoccupied (Swainson, Westwood), and should be replaced by *Cochliophagus*, D. & B., C. BERG, Comun.

Mus. Buenos Aires i, p. 291. Synopsis of the species by WERNER, Abh. Mus. Dresden ix, No. 2, p. 11; *L. variegata*, D. & B. Remarks, and head figured by STEJNEGER, P. U. S. Mus. xxiv, p. 192, figg.; *L. boettgeri*, sp. n., WERNER, t. c., p. 11, Peru.

VIPERIDÆ.

- Vipera*, Laur. On the habits of the European species: KAMMERER, Zool. Garten xlii, pp. 139 & 169; *V. berus*, L. LEIGHTON's "British Serpents" contains much information on its habits and distribution in Great Britain; *V. berus*, L. Observations made in Norfolk by M. C. H. BIRD, Tr. Norfolk Soc. vii, p. 243; *V. rubra*, n. n. for *V. berus*, var. *chersea*, L.: LEIGHTON, op. cit. p. 213.
- Cerastes cornutus*, Forsk. On its habits in captivity: KAMMERER, Zool. Garten xlii, p. 175. Var. n. *mutila*, DOUMERGUE, Erp. Oranie, p. 319, pl. xxiii, fig. 3, Algeria.
- Atractaspis*, Smith. Synopsis of the species by BOULENGER, Ann. Mus. Congo, Zool. (1) ii, p. 12; *A. heterochilus*, p. 13, pl. v, fig. 1, W. Coast of L. Tanganyika, *katanga*, p. 13, pl. v, fig. 2, Katanga, and *coarti*, p. 14, pl. v, fig. 3, W. Coast of L. Tanganyika, spp. nn., id. ibid.
- Ancistrodon intermedius*, Strauch. Note by MÉHELY, Zool. Ergebn. Zichy Forschungsreise, p. 58.
- Lachesis atrox*, L. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 178; *L. bilineatus*, Wied, var. n. *oligolepis*, WERNER, Abh. Mus. Dresden ix, No. 2, p. 13, Bolivia.
- Sistrurus catenatus*, Raf. Note on the habits by E. E. RAMSEY, P. Indiana Ac. 1900, p. 223.

ORNITHOSAURIA.

- H. G. SEELEY's "Dragons of the Air" gives a general account of the structure and distribution of these Reptiles, with numerous figures of the skeleton and restorations of the principal forms.
- General remarks on this order by PLIENINGER, Palæontogr. xlviii, pp. 85-90, who divides it into two suborders: *Rhamphorhynchoidea* (*Rhamphorhynchidæ*), and *Pterodactyloidea* (*Pterodactylidæ* and *Ornithochiridæ*).
- Pterodactylus kochi*, Wagl. Specimen described and figured by PLIENINGER, t. c. p. 65, pl. iv.
- Pteranodon*, Marsh. Remarks by PLIENINGER, t. c. p. 76.

DINOSAURIA.

- F. NOPCSA, Foldtani Kozl. xxxi, pp. 247-279, pl. i, gives a list of the known Dinosaurs, with remarks on the phylogenetic relations of the various groups.
- H. v. HUENE, Centrbl. Mineral. 1901, pp. 715-718, figg., remarks on the Dinosaurian remains in the Woodwardian Museum, Cambridge.
- J. B. HATCHER, Ann. Carnegie Mus. i, pp. 327-341, figg., remarks on the Jurassic Dinosaur deposits of Canyon City, Colorado.
- F. v. HUENE, N. Jahrb. Min. 1901, ii, pp. 89-104, figg., pls. iii & iv, remarks on the triassic Theropoda of Continental Europe.
- H. F. OSBORN & W. GRANGER, Bull. Amer. Mus. xiv, pp. 199-208, figg., describe limb-bones of North American Sauropoda referred to the genera *Diplodocus*, *Morosaurus*, and *Brontosaurus*.

- Stegosaurus marshi*, sp. n., LUCAS, P. U. S. Mus. xxiii, p. 591, 2 pls., Lower Cretaceous, South Dakota.
- Diplodocus*, Marsh. Genus monographed by J. B. HATCHER, Mem. Carnegie Mus. i, p. 1, pls. i-xiii; *D. carnegii*, sp. n., id. ibid. p. 57, Cretaceous of Wyoming.
- Claosaurus annexens*, Marsh. On the dermal covering: HATCHER, Ann. Carnegie Mus. i, p. 129, fig.
- Basilosaurus cetoides*, Ow. Note on the pelvic girdle and other portions of the skeleton, by LUCAS, P. U. S. Mus. xxiii, p. 327, pls. v-vii.
- Morosaurus*, Marsh. On the fore limb of *M. grandis*, Marsh, and *M. robustus*, Marsh, with notes on the closely allied genus *Camarosaurus*, Cope, E. S. RIGGS, Field Columbian Mus. Geol. i, p. 275, pls. xl-xlii.
- Pelorosaurus*, Mantell. Note by SAUVAGE, C.R. Congr. Soc. Sav. 1901, p. 157.
- Genyodectes*, g. n., allied to *Megalosaurus*, for *G. serus*, sp. n., A. S. WOODWARD, P. Z. S. 1901, ii, p. 179, pls. xviii & xix, Red Sandstone, Canadon Grande, Patagonia.
- Compognathus longipes*, Wagn. Photograph of the type specimen, with remarks on its supposed dermal armour: F. v. HUENE, N. Jahrb. Min. 1901, i, p. 157, pl. vii.
- E. S. RIGGS, Science (2) xiii, p. 549, remarks on a newly discovered North American Dinosaur, stated to be the largest known.

EMYDOSAURIA.

- A. M. REESE, P. Ac. Philad. 1901, pp. 457-464, pl. xxiv, writes on the nasal passages of *Alligator mississippiensis*.
- A. VOELTZKOW, Abh. Senckenb. Ges. xvi, pp. 339-418, figg., 7 pls., describes the early development of *Crocodylus madagascariensis*.
- A. M. REESE, Amer. Natural. xxv, p. 193, relates his successful attempt to hatch Alligator eggs artificially.
- Tomistoma africanum*, sp. n. (foss.), ANDREWS, Geol. Mag. (2) Dec. iv, viii, p. 443, Eocene, Egypt.
- Crocodylus niloticus*, Laur. On its proper scientific name: W. J. FOX, Science (2) xiii, p. 232, and STEJNEGER, t. c. p. 394; *C. porosus*, Schn. Note by CARRUCCIO, Boll. Soc. zool. Ital. (2) i, p. 102.
- Geosaurus suevicus*, E. Fraas (foss.). Restoration by E. FRAAS, Jahresh. Ver. Wurttemb. 1901, and Mt. Nat.-Kab. Stuttgart, No. 19, p. 410, fig. The name *Thalattosuchia* is proposed for a group of fin-tailed Crocodylians embracing the genera *Metriorhynchus*, *Geosaurus*, and *Dacosaurus*. E. FRAAS, ll. cc.

CHELONIA.

- L. DOLLO, Bull. Soc. Bruxelles, 1901, discusses the phylogeny of marine Chelonians, and concludes that the Athecæ are descended from the Thecophora.
- A. VOELTZKOW, Abh. Senckenb. Ges. xvi, pp. 275-310, figg., 4 pls., describes the gastrulation of *Podocnemis madagascariensis*.
- Cyclanorbis senegalensis*, D. & B. Note by TORNIER, Arch. Naturg. 1901, Beih. p. 68.
- Sternotherus derbianus*, Gray. Notes by TORNIER, Arch. Naturg. 1901, Beih. pp. 65-88; *S. steindachneri*, sp. n., SIEBENROCK, Zool. Anz. xxv, p. 6, Madagascar.
- Stereogenys*, g. n., allied to *Podocnemis*, for *S. cromeri*, sp. n. (foss.), ANDREWS, Geol. Mag. (2) Dec. iv, viii, p. 442, fig., Eocene, Egypt.

- Pseudemidura*, g. n., near *Emydura*, Bp., for *P. umbrina*, sp. n., SIEBEN-ROCK, Anz. Ak. Wiss. 1901, No. xxii, Australia.
- Chelodina oblonga*, Gray. Note by SCHENKEL, Verh. Ges. Basel xiii, p. 198; *C. siebenrocki*, sp. n., WERNER, Verh. Ges. Wien li, p. 602, pl. v, New Guinea.
- Miolania argentina*, Amegh. (foss.), described and figured by A. S. WOODWARD, P. Z. S. 1901, i, p. 170, pls. xv-xviii.
- Baena hatcheri*, sp. n. (foss.), O. P. HAY, Ann. Carnegie Mus. i, p. 325, Laramie Beds, Wyoming.
- Compsemys variolosa*, Cope (foss.), is referred to *Adocus*, Cope, and a plastron from the Cretaceous of the Red Deer River, Alberta, described and figured by L. M. LAMBE, Ottawa Natural. xv, p. 63, pls. iii-vi.
- Cinosternum carinatum*, Gray. Young described and figured by LINDHOLM in LAMPE, Jahrb. Nassau. Ver. liv, p. 183, pl. iii, figg. 1 & 2; *C. berendtianum*, Cope. Note by LINDHOLM, l. c. p. 185.
- Chrysemys reticulata*, Daud. Note by LINDHOLM in LAMPE, t. c. p. 186.
- Orlitia borneensis*, Gray, is probably the young of *Brookia baileyi*, Bartl. SCHENKEL, Verh. Ges. Basel xiii, p. 194.
- Clemmys insculpta*, Leconte. On correlated abnormalities in the scutes and bony plates of the carapace: G. H. PARKER, Amer. Natural. xxxv, p. 17, figg.
- Limnochelone*, g. n., near *Nicoria*, Gray. WERNER, Zool. Anz. xxiv, p. 297; *L. micrura*, sp. n., id. ibid. p. 298, Mexico.
- Cyclemys dhor*, Gray. Note by CARRUCCIO, Boll. Soc. zool. Ital. (2) i, p. 95.
- Geomyda spinosa*, Gray. Note by CARRUCCIO, t. c. p. 97.
- Cinixys belliana*, Gray. On an abnormal specimen: SORDELLI, Atti Mus. Milano xxxix, p. 111, figg.
- Testudo becki*, sp. n., ROTHSCILD, Nov. Zool. viii, p. 372, Albemarle Id., Galapagos Archipelago.
- Thalassochelys libyca*, sp. n. (foss.), ANDREWS, Geol. Mag. (2) Dec. iv, viii, p. 441, Eocene, Egypt.
- Psephophorus eocenus*, sp. n. (foss.), ANDREWS, t. c. p. 440, fig., Eocene, Egypt.

ICHTHYOSAURIA.

- Ichthyosaurus bambergensis*, sp. n., BAUER, Ber. Ges. Bamberg xviii, No. 3, figg., 2 pls., Upper Lias of Geisfeld, Germany.

THECODONTIA.

- J. H. MCGREGOR, Science (2) xiii, p. 272, remarks on the affinities of the Belodonts, which he regards as intermediate between the Rhynchocephalians and the Ichthyosaurs.

RHYNCHOCEPHALIA.

- This order, named *Prosauroi* and divided into two suborders, *Protosauri* and *Rhynchocephali*, is associated with the *Microsauroi* [Batrachia] in a subclass, *Prosauria*, by H. GADOW, Cambridge Natural History viii, p. 288.
- G. B. HOWES & H. H. SWINNERTON, Tr. Zool. Soc. London xvi, pp. 1-86, pls. i-vi, bring out a memoir on the development of the skeleton of *Sphenodon punctatus*, Gray, with remarks on the egg, on the hatching, and on the hatched young.

- H. S. HARRISON, Quart. J. Micr. Sci. (2) xliv, pp. 161-213, pls. x-xii, has a paper on the development and succession of the teeth in *Sphenodon punctatus*. Abstract, Anat. Anz. xx, pp. 145-158, figg.
- H. VIRCHOW, SB. Ges. naturf. Berlin 1901, pp. 42-62, and Arch. Physiol. 1901, pp. 355-363, writes on the retina of *Sphenodon punctatus*.
- Naosaurus mirabilis*, Fritsch (foss.), noticed and figured by FRITSCH, Faun. Gaskohle iv, p. 86, figg.

ANOMODONTIA.

- R. BROOM, Tr. S. African Soc. xi, pp. 169-176, pl. xxv, remarks on the structure of the palate in *Dicynodon* and its allies.
- Udenodon gracilis*, sp. n., BROOM, P. Z. S. 1901, ii, p. 162, pls. xvi-xviii, Lower Karroo beds of Pearston, S. Africa.
- Ictidosuchus*, g. n., probably allied to *Theriodesmus*, for *I. primævus*, sp. n., BROOM, t. c. p. 177, pls. xxvi & xxvii, Trias of Pearston, S. Africa.
- Pariosaurus*, Seeley. On remains of a new species from the Permian of Northern Russia: V. AMALITZKY, C.R. Ac. Sci. cxxxij, p. 593.

BATRACHIA.

- H. GADOW, in the eighth volume of the Cambridge Natural History, introduces various innovations in the classification of the Batrachians. Some of the *Stegocephala* are now transferred to the class Reptilia.
- R. SEMON, Zool. Anz. xxiv, pp. 180-188, deals with the relation between Batrachia and Dipneusti.
- H. L. BRUNER, Morphol. Jahrb. xxix, pp. 317-364, pls. xvii & xviii, writes on the smooth facial muscles of Tailless and Tailed Batrachians, as a contribution to the anatomy and physiology of the respiratory mechanism.
- H. M. BERNARD, Quart. J. Micr. Sci. (2) xliv, pp. 443-468, pls. xxx & xxxi, brings out the second part of his studies on the retina of Batrachians.
- W. KAPEL'KIN, Bull. Soc. Moscou 1900, pp. 433-448, pls. v & vi, writes on the development of the vertebral column of Batrachians.
- V. HINSBERG, Arch. mikr. Anat. lviii, pp. 411-482, figg., pls. xix-xxii, has investigated the development of the nasal cavity in Batrachians.
- K. PETER, Anat. Anz. xix, pp. 185-191, figg., writes on the influence of the developmental conditions on the formation of the central nervous system and the sense-organs in Batrachians.
- A. F. CONRADI, Science (2) xiv, p. 816, writes on the stupefying effect on Batrachians of the odoriferous secretion of a North American Heteropterous Insect, *Anasa tristis*.

ECAUDATA.

- E. GAUFP, in the first part of the third division of his new edition of Ecker's Anatomie des Frosches, deals with the visceral anatomy of the Frog.
- MARAGE, C.R. Ac. Sci. cxxxii, pp. 1072-1074, figg., remarks on the otoliths of Frogs.
- F. J. COLE, P. Liverp. biol. Soc. xv, pp. 114-124, pl. i, describes some variations in the spinal muscles of *Rana temporaria*.
- R. H. KAHN, Arch. mikr. Anat. lvii, pp. 102-117, pl. viii, describes the *inscriptions elasticæ* in the tendons of the oblique abdominal muscles of *Rana esculenta*.

- B. D. MYERS, Zeitschr. Morphol. iii, pp. 183-207, figg., pls. xii & xiii, investigates the decussating optic chiasma of *Bufo lentiginosus*, which is compared with that of some other terrestrial Vertebrates.
- A. KÜHN, Arch. mikr. Anat. lvii, pp. 445-479, figg., writes on the nerves of the skin of *Rana temporaria*.
- W. TONKOFF, Arch. mikr. Anat. lvii, pp. 95-101, pl. vii, writes on the elastic fibres of the skin of *Rana esculenta* and *R. temporaria*.
- G. BRANDES & W. SCHOENICHEN, Abh. Ges. Halle xxii, pp. 395-461, figg., pls. ii-iv, review the unusual modes of gestation and nursing habits of Tailless Batrachians.
- E. GAUPP, Anat. Anz. xx, pp. 269 & 270, remarks on the epithelium on the papillæ of the tongue of the Frog.
- ALICE GAULE, Arch. ges. Physiol. lxxxiv, pp. 1-5, pl. i, writes on sexual differences in the liver of *Rana esculenta*.
- J. P. MORAT, C.R. Soc. Biol. liii, pp. 473 & 474, remarks on the accumulation of fatty matter in the spinal ganglia of Frogs, as a food-reserve during hibernation. Further remarks by C. BONNE, t. c. pp. 474-476.
- J. GAULE, Arch. ges. Physiol. lxxxvii, pp. 473-537, figg., has studied the changes in the organism of *Rana esculenta* in the course of the year.
- E. SUCHARD, C.R. Soc. Biol. liii, pp. 1179 & 1180, remarks on the role of the valvule of Brücke in the bucco-pharyngeal respiration of the Frog.
- E. GAUPP, Anat. Anz. xix, pp. 385-396, figg., writes on the mechanism of the movements of the tongue in Frogs.
- M. HARTOG, C.R. Ac. Sci. cxxxii, pp. 588 & 589, and Ann. Nat. Hist. (7) vii, pp. 501-503, remarks on the mechanism of the protrusion of the tongue in the Frog.
- F. J. COLE, P. Liverp. biol. Soc. xv, pp. 114-124, pl. ii, describes an abnormal vertebral column of *Rana esculenta*.
- R. H. JOHNSON, Amer. Natural. xxxv, pp. 17-24, figg., and C. H. EIGENMANN & U. O. COX, t. c. p. 33, fig., describe cases of polymely in *Rana halecina* and *R. palmipes*.
- J. BROMAN, Anat. Anz. xx, pp. 347-351, figg., remarks on the spermatozoa of *Pelobates fuscus* and on the double tails of other Batrachian spermatozoa.
- THON, Tagebl. v. Int. Zool. Congr. No. 8, pp. 13 & 14, remarks on the development of *Hyla arborea*.
- HELEN D. KING, Arch. Entwicklmech. xiii, pp. 545-564, figg., records her experiments on the formation of the embryo of *Bufo lentiginosus*.
- T. W. SHORE, J. Anat. Physiol. norm. path. (2) xv, pp. 323-329, figg., writes on abnormal veins, and, xvi, pp. 20-46, figg., on the development of the renal-portals and the fate of the posterior cardinal veins in *Rana temporaria*.
- H. FOX, P. Ac. Philad. 1901, pp. 223-260, pls. vi-ix, writes on the development of the tympano-eustachian passage and associated structures in *Bufo lentiginosus*.
- L. BARBADORO, Anat. Anz. xix, pp. 597-601, figg., investigates the structure of the retina in the development of *Rana*.
- W. ADLER, Int. Monatschr. Anat. xviii, pp. 19-42, pls. iii & iv, describes the development of the external form and of the mesoderm in *Bufo vulgaris*.
- F. RAFFAËLE, Monit. Zool. ital. xii, pp. 221 & 222, remarks on the gastral mesoderm and records some experiments on embryos and larvae of Tailless Batrachians.
- L. KATHARINER, Arch. Entwicklmech. xii, pp. 597-609, fig., writes on the orientation of Frog-eggs.
- H. V. WILSON, Anat. Anz. xx, pp. 123-128, has made further experiments on the closure of the blastopore in Frog-eggs.

- E. BATAILLON, Arch. Entwicklmech. xi, pp. 171 & 174, has made experiments on osmotic pressure on the eggs of *Rana esculenta*, and xii, pp. 610-655, figg., on artificial teratogenesis on *R. temporaria*.
- E. GODLEWSKI, op. cit. xi, pp. 585-616, pls. xxi & xxii, writes on the effects of oxygen on the development of *Rana temporaria*. Further remarks by E. BATAILLON, op. cit. xii, pp. 302-604, and GODLEWSKI, pp. 305 & 306.
- F. HENNEGUY, C.R. Soc. Biol. liii, pp. 351-353, gives an abstract of his experiments on the supposed parthenogenesis of Frogs' eggs, and on the cases of pseudo-segmentation obtained by him by chemical means. Also experiments on the same subject by Mme RONDEAU-LUZEAU, t. c. pp. 433-435.

RANIDÆ.

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- Mantella aurantiaca*, sp. n., MOCQUARD, Bull. Mus. Paris 1900, p. 348, Madagascar; *M. attemsi*, sp. n., WERNER, t. c. p. 627, Madagascar.
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- Atelopus longirostris*, Cope, var. n. *marmorata*, WERNER, Verh. Ges. Wien li, p. 600, Ecuador.
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- Phrynxalus*, Bttgr. Remarks by MÉHELY, l. c. p. 245; *P. montanus*, Bttgr., described and figured by BOETTGER, Abh. Senckenb. Ges. xxv, p. 368, pl. xvi, fig. 9; *P. biroi*, sp. n., MÉHELY, Verh. Ges. Wien li, p. 247, pl. xii, fig. 2, New Guinea.
- Copiula*, g. n., for *Phrynxalus oxyrhinus*, Blgr., MÉHELY, t. c. p. 242.
- Metopostira*, g. n., allied to the preceding, MÉHELY, l. c. p. 238; *M. ocellata*, sp. n., id. ibid. p. 239, pl. xii, fig. 1, New Guinea.
- Mantophryne*, Blgr. Synopsis of the species by WERNER, Zool. Anz. xxiv, p. 102; *M. microtis*, sp. n., id. ibid., German New Guinea.
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- Microhyla picta*, sp. n., SCHENKEL, Verh. Ges. Basel xiii, p. 151, fig., Cochinchina?; *M. okinawensis*, sp. n., STEJNEGER, P. Soc. Washington xiv, p. 189, Okinawa Shima, Loo Choo Ids.
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- Xenorhina dubia*, Bttgr., described and figured by BOETTGER, t. c. p. 369, pl. xvi, fig. 10.
- Choanacantha mehelyi*, Blgr. = *C. rostrata*, Méh., and is referred to *Xenorhina*, Ptrs., MÉHELY, l. c. p. 233.
- Chaperina fusca*, Mocq., redescribed and figured by MÉHELY, l. c. p. 257, pl. xii, fig. 3; *C. polysticta*, sp. n., id. ibid. p. 258, pl. xii, fig. 4, New Guinea.

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- Dyscophus alluaudi*, sp. n., MOCQUARD, Bull. Mus. Paris 1901, p. 254, Madagascar.
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- Hylodes lentus*, Cope, figured by MEERWARTH, Mt. Mus. Hamburg xviii, 2, pl. i, fig. 12, pl. ii, figs. 1-3; *H. monensis*, sp. n., id. ibid. p. 39, pl. ii, figs. 4 & 5, Mona; *H. nubilus*, sp. n., GÜNTHER, Biol. Centr.-Amer., Batr. p. 237, pl. lxix, fig. 4, Costa Rica.
- Philoria*, g. n., near *Limnodynastes*, for *P. frosti*, sp. n., SPENCER, P. Soc. Victoria (2) xiii, p. 176, Victoria.

DENDROPHRYNISCIDÆ.

Batrachophrynus microphthalmus, sp. n., WERNER, Abh. Mus. Dresden ix, No. 2, p. 13, figg., Andes of Peru.

BUFONIDÆ.

Nectophryne esigua, sp. n., BOETTGER, Abh. Senckenb. Ges. xxv, p. 394, N. Borneo [= ? *N. everetti*, Blgr.—REC.].

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Nototrema oviferum, Weinl. Young figured by GÜNTHER, Biol. Centr.-Amer., Batr. pl. lxxiv, fig. A; *N. pygmeum*, Bttgr., figured by BRANDES & SCHOENICHEN, Abh. Ges. Halle xxii, pl. ii, figg. 1 & 2.

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- S. PROWAZEK, Arb. Inst. Wien xiii, pp. 81-124, figg., pls. iii-v, investigates the histology of the regenerated tail in tailed Batrachians.
- G. WOLFF, Arch. Entwicklmech. xii, pp. 307-351, figg., pls. vii & viii, has made further observation on the regeneration of the lens in Tailed Batrachians.
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- G. LEVI, Monit. Zool. ital. xii, p. 144, has observations on the development of cones and rods in the retina of Tailed Batrachians.
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STEGOCEPHALA.

Dolichosoma scutiferum and *crenatum*, spp. nn., FRITSCH, Faun. Gaskohle iv, pp. 87 & 88, pl. clxiii, figg. 1-5, Permian, Bohemia.

Ophiderpeton persuadens and *forte*, spp. nn., FRITSCH, t. c. pp. 88 & 89, pl. clxiv, figg. 1-3, Permian, Bohemia.

Nummulosaurus, g. n. for *N. kolbii*, sp. n., FRITSCH, t. c. p. 89, pl. clxii, figg. 6-8, Permian, Bohemia.

Ptyonius distinctus, sp. n., FRITSCH, t. c. p. 90, pl. clxiv, Permian, Bohemia.

Sclerocephalus? credneri, sp. n., FRITSCH, t. c. p. 93, fig., Permian, Bohemia.

The following *Saurichnites*, from the Permian of Bohemia, are described under new names by FRITSCH, t. c. pp. 96 & 97: *S. intermedius*, *perlatus*, *calcaratus*, *caudifer*, *comæformis*, and *incurvatus*.

Chirotherium herculis, Egert. Type specimen noticed and figured by H. C. BEASLEY, P. Liverp. geol. Soc. xlii, p. 81, pl. v.

V. PISCES.

BY

G. A. BOULENGER, F.R.S.

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II. GENERAL SUBJECT.

E. LÖNNBERG contributes a first fascicle (pp. 1-48) of the introduction to the Fishes in Bronn's Klassen und Ordnungen des Thier-Reichs. This fascicle deals with the history of Ichthyology.

A. S. WOODWARD's fourth volume of the Catalogue of Fossil Fishes in the British Museum, deals with the Teleosteans, which are divided into 7 Suborders: *Isoepondyli* (including *Haplomi*), *Ostariophysii*, *Apodes*, *Percesoces*, *Hemibranchii* (including *Lophobranchii*), *Acanthopterygii* (including *Plectognathi*) and *Anacanthini*.

W. P. PYCRAFT's 'Story of Fish Life' gives a popular account of the structure, habits, and distribution of Fishes.

F. STEINDACHNER, Festschr. Zool.-bot. Ges. Wien 1901, pp. 407-443, reviews the work done by Austrian ichthyologists from 1850 to 1900.

C. RABL, Zeitschr. wiss. Zool. lxx, pp. 474-496, discusses the origin of paired fins, the author being in favour of the lateral-fold theory, and, pp. 520-558, deals with the history of the Archipterygium.

A. GOETTE, Zeitschr. wiss. Zool. lxxix, pp. 533-577, fig., pls. xl-xliii, writes on the structure of the gills of Fishes.

MARIANNE PLEHN, Zool. Anz. xxiv, pp. 439-443, figg., has a preliminary communication on the structure of the gills.

C. M. L. POPTA writes on the branchial appendages of Fishes: Ann. Sci. nat. (8) xii, pp. 139-216, pl. vii, and Bull. Mus. Paris 1901, pp. 11 & 12.

C. FRYD publishes a pamphlet (Kiel, 8vo) on the otoliths of Fishes.

H. NEUVILLE, Ann. Sci. nat. (8) xiii, pp. 1-116, figg., pl. i, writes on the intestinal vascularisation in Cyclostomes and Selachians.

M. JAQUET, Bull. Soc. Bucarest x, pp. 240-250, writes on the sympathetic nervous system.

R. KRAUSE, Anat. Anz. xix, pp. 49-59, figg., writes on the origin of the ductus endolymphaticus.

F. RAFFAELE, Monit. Zool. ital. xii, p. 221, remarks on the gastral mesoderm, with special reference to Selachians and Amphioxus.

S. HATTA, Annot. zool. Japon. iv, pp. 43-47, has a preliminary note on the relation of the metameric segmentation of mesoblast in *Petromyzon* to that in *Amphioxus* and the higher Craniota.

H. DE WAELE, Bull. Mus. Paris 1900, pp. 378-282, has a preliminary note on the development of the eye of Fishes.

K. PETER, Anat. Anz. xix, pp. 180-185, figg., writes on the influence of the developmental conditions on the formation of the central nervous system and the sense-organs.

A. W. ALCOCK's Zoological Gleanings from the Marine Survey Ship 'Investigator,' Sci. Mem. Med. Offic. Army India xii, pp. 35-76, contains remarks on commensalism, sexual characters, pairing, viviparity, and protective and warning coloration among Indian Marine Fishes.

E. E. PRINCE, Ottawa Natural. xiv, pp. 212-217, writes on the powers of Adaptation in Fishes.

W. C. MCINTOSH, Ann. Nat. Hist. (7) vii, pp. 235-239, makes general remarks on the coloration of marine Fishes.

G. FRITSCH, Tagebl. v. Int. Zool. Congr. No. 8, p. 11, remarks on the coloration and markings of electric Fishes.

H. COUTÈRE, Caus. Soc. zool. France 1900, pp. 25-36, remarks on poisonous Fishes.

P. STEPHAN, De l'hermaphrodisme chez les Vertébrés, has very full observations on hermaphrodite fishes.

A. E. VERRILL, Amer. J. Sci. (4) xii, p. 88, remarks on the death of tropical Marine Fishes caused by unusual cold.

K. KNAUTHE, Zool. Garten xlii, pp. 153-156, writes on mortality in Fish caused by thunder.

N. ZOLONISKY, Arch. zool. exp. Notes (3) ix, pp. i-v, remarks on the power which Fishes possess of distinguishing colours.

D. S. JORDAN, Science (2) xiv, pp. 545-567, 936, discusses the geographical distribution of Fishes. Remarks by A. E. ORTMANN, t. c. pp. 694 & 695.

H. W. FOWLER, P. Ac. Philad. 1901, pp. 327-341, pls. xii-xv, remarks on the type specimens of Ganoids, Chondropterygians, and Cyclostomes preserved in the Museum of the Academy of Philadelphia, adding notes on their anatomy.

III. FAUNÆ.

ARCTIC REGIONS.

E. EHRENBAUM contributes the chapter on Fishes in F. RÖMER & F. SCHAUDINN'S Fauna Arctica ii, pp. 65-108. Remarks on the Fish-fauna by A. S. JENSEN, Vid. Medd. 1901, pp. 191-202.

Spitzbergen. On the Fishes collected by the Russian Expedition: KNIPOWITSCH, Annuaire Mus. St. Petersb. vi, pp. 56-83.

EUROPÉ.

Norway. Additions to the marine fauna: COLLETT, Arch. Naturv. Christian. xxiii, No. 7, 25 pp.

N. Russia. On the Fishes of the Baltic Provinces and their local names: G. SCHNEIDER, KB. Ver. Riga xlv, pp. 18-20.

Coast of Scotland. On the Fishes trawled by the 'Garland' in 1900: T. W. FULTON, Rep. Fish. Board Scotland xix, iii, pp. 58-91. On some rare Fishes: id. ibid. pp. 282-291.

Cumberland. List of the Fishes by H. A. MACPHERSON, Victoria History of the County of Cumberland i, pp. 169-176.

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France. On the occurrence of some rare Fishes on the Coast of Normandy: L. BRASIL, Bull. Soc. Normand. (5) iv, pp. 75-83.

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Italy. S. LO BIANCO, Mt. Stat. Neapel xv, pp. 427-432, enumerates some pelagic and deep-sea fishes obtained near Capri.

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Galicia. List of the Fishes by E. L. NIEZABITOWSKI, Sprawozd. Kom. Krajo. xxxv, pp. 122-124.

ASIA.

Japan. D. S. JORDAN, Science (2) xiv, pp. 545-549, has general remarks on the fish-fauna. JORDAN & SNYDER, Annot. zool. Japon. iii, pp. 31-159, issue a check-list of the Fishes, and the same authors, P. U. S. Mus. xxiii,

pp. 725-734, 740-769, 837-913, and xxiv, pp. 1-20, 33-132, and 229-264, as well as JORDAN & STARKS, op. cit. xxiv, pp. 198-206, write on various groups of Fishes.

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Nile. Diagnoses of new species by BOULENGER, Ann. Nat. Hist. (7) viii, pp. 10-12, and 444-446. On some Fishes from the White Nile: S. S. FLOWER, P. Z. S. 1900, p. 969.

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Lakes Albert and Albert Edward. Diagnoses of new Fishes by BOULENGER, Ann. Nat. Hist. (7) viii, pp. 12-14.

Niger Delta. On a collection of Fishes: BOULENGER, P. Z. S. 1901, i, pp. 4-10, pls. ii-iv.

Congo Basin. BOULENGER's "Poissons du Bassin du Congo," gives a complete account of the Fishes known at the close of the nineteenth century.

French Congo. On some new or little-known Fishes: PELLEGRIN, Bull. Mus. Paris 1900, pp. 348-354.

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Atlantic Coast of the United States. List of Fishes dredged off the Southern Coast of New England: F. HOWE, Bull. U. S. Fish Comm. xix, p. 240.

Ohio. Catalogue of the Fishes, by R. C. OSBURN, Pap. Ohio Ac. No. 4, 104 pp.

Indiana. On the Fishes of Winona Lake: E. E. RAMSEY, P. Indiana Ac. 1900, pp. 220 & 221.

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Argentina. C. BERG, Comun. Mus. Buenos Aires i, pp. 293-311, has further notes on the Fish-fauna.

Patagonia. On some fresh-water Fishes: SMITT, Bih. Svenska Ak. xxvi, iv, No. 13, 31 pp., 4 pls.

AUSTRALIA and POLYNESIA.

Western Australia. On a collection of Fishes: E. R. WAITE, Rec. Austral. Mus. iv, pp. 179-194, fig., pls. xxvii-xxxi.

Lord Howe Island. Additions to the Fish-Fauna by E. R. WAITE, t. c. pp. 36-47, pls. v-viii.

Hawaiian Islands. Descriptions of new Fishes by O. P. JENKINS, Bull. U. S. Fish Comm. xix, pp. 45-65, 387-404, figg.

Caroline Island (or Thornton Island), South Pacific. On a small collection of Fishes: FOWLER, P. Ac. Philad. 1901, pp. 324-326.

IV. PALÆONTOLOGY.

A. S. WOODWARD's Catalogue of Fossil Fishes, vol. iv, concludes the account of the collection in the British Museum.

R. H. TRAQUAIR's Presidential Address to the Section of Zoology, British Association, quoted in the preceding Record, p. 16, is printed in Rep. Brit. Ass. 1900, pp. 768-783.

Pleistocene Deposits of Great Britain. On the Fishes at present known: E. T. NEWTON, Geol. Mag. (2) Dec. iv, viii, pp. 49-52.

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Carboniferous of Yorkshire. E. D. WELLBURN, P. Yorksh. geol. Soc. (2) xiv, pp. 159-177, enumerates fish-remains.

Devonian of England. On the Fish-fauna of the Millstone Grits: WELLBURN, Geol. Mag. (2) Dec. iv, viii, pp. 216-222.

Devonian of the Eifel. On some recently discovered fish-remains: EASTMAN, Centrbl. Mineral. 1900, pp. 177 & 178.

Oligocene of Bohemia. On the Fishes of the brown coal: G. C. LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. pp. 9-51, figg., pls. i-viii.

Miocene of Acqui, Liguria. On various Fish-remains: DE ALESSANDRI, Atti Mus. Milano xxxix, pp. 241-254, pl. —.

Tertiary of Calabria. L. SEGUENZA, Boll. Soc. geol. Ital. xx, pp. 254-262, remarks on some Miocene and Pliocene Fish-remains from the Province Reggio.

Cretaceous of Kansas. On the Fishes: S. W. WILLISTON & A. S. STEWART, Univ. Geol. Surv. Kansas vi, Paleont. ii, pp. 237-403, pls. xxiv-lxxiii.

Tertiary of Argentina. D. SANGIORGI, Riv. ital. Pal. vii, pp. 62-68, pl. i, remarks on some Fish-remains from Parana.

V. REFERENCES ARRANGED SYSTEMATICALLY.

TELEOSTOMI.

TELEOSTEI.

E. C. STARKS, P. Washington Ac. iii, pp. 507-539, figg., pl. lxxiii-lxv, enumerates and defines the various elements of the Teleost skeleton and gives tables of synonyms for the various bones.

F. SIEBENROCK, Ann. Hofmus. Wien xvi, pp. 105-141, pls. iv-vi, illustrates the various modes of suspension of the shoulder-girdle in Teleosteans.

J. PELLEGRIN, Bull. Soc. Philom. (9) iii, pp. 81-91, figg., writes on the frontal gibbosity of various Perciform Fishes.

K. HANDRICK, Zoologica xiii, pp. 1-68, pls. i-vi, investigates the nervous system and the luminous organs of *Argyrolepeus hemigymnus*.

R. G. HARRISON, Arch. mikr. Anat. lvii, pp. 354-444, figg., pls. xviii-xx, writes on the histogenesis of the peripheral nervous system of *Salmo salar*.

K. P. JAGODOWSKI, Anat. Anz. xix, pp. 257-267, figg., investigates the termination of the olfactory nerves in Teleosteans.

M. JAQUET, Bull. Soc. Bucarest x, pp. 404-482, figg., describes the cranial nerves of *Silurus glanis*.

J. NUSBAUM & T. PRYMAK, Anat. Anz. xix, pp. 6-19, figg., write on the development of the lymphoid elements of the thymus in Teleosteans.

N. CZERMAK, Anat. Anz. xx, pp. 158-160, fig., has a preliminary communication on the fertilisation of the Trout ovum.

F. KOPSCH, Int. Monatsschr. Anat. xviii, pp. 43-127, figg., investigates the segmentation of the egg in *Belone acus*.

F. MAZZA, Monit. Zool. ital. xii, pp. 235-237, writes on the early differentiation of the gonads and the maturation of the ovum in *Cyprinodon calaritanus*.

A. SWAEN & A. BRACHET, Arch. Biol. xviii, pp. 73-190, pls. iii-vi, bring out the second part of their study of the first phases in the development of the organs derived from the mesoblast in Teleosteans.

J. BOEKE, Anat. Anz. xx, pp. 17-20, figg., discusses the signification of the infundibular organ in the development of the Teleostean egg.

E. BATAILLON, Arch. Entwicklmech. xi, pp. 171-173, has made experiments on osmotic pressure on the eggs of Teleosteans.

P. A. LEVENE, Bull. U. S. Fish Comm. xix, pp. 153-155, writes on some chemical changes in the developing Fish-egg.

M. NUSBAUM, Arch. mikr. Anat. lviii, pp. 199-230, pls. x & xi, describes the development of the *Musculus retractor lentis* in *Salmo salar*.

D. PEDASCHENKO, Anat. Anz. xix, pp. 494-496, remarks on the brain of the embryo of *Zoarces viviparus*.

E. E. RAMSEY, J. Comp. Neurol. xi, pp. 40-47, 2 pls., writes on the optic lobes and optic tracts of *Amblyopsis spelæa*.

F. SCHMITT, Arch. Entwicklmech. xiii, pp. 34-134, figg., pl. i, investigates double embryos of Salmonids.

W. C. MCINTOSH, Rep. Brit. Ass. 1900, p. 785, comments on the habits of some littoral Fishes.

E. RAUSCHENPLAT, Wiss. Meeresuntersuch. (2) v, pp. 116-127, reports on the food of some Fishes in the Bay of Kiel.

ACANTHOPTERYGII.

CENTRARCHIDÆ.

R. W. SHUFELDT, Bull. U. S. Fish Comm. xix, pp. 311-320, figg., pl. xlv, describes and figures the skeleton of *Micropterus salmonoides*.

The same author, t. c. pls. i-iv, gives photographs, from life, of this fish and of *Lepomis auritus* and *L. gibbosus*.

Xenichthys xenurus, J. & G. = *Kuhlia malo*, D. & B. JORDAN, Amer. Natural. xxiv, p. 84.

SERRANIDÆ.

- Morone americana*, Gm., photograph from life by SHUFELDT, Bull. U. S. Fish Comm. xix, pl. iv.
- ✓ *Labrax aningensis*, n. n. for *Perca lepidota*, Ag. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 511.
- ✓ *Ebisus*, g. n., near *Stereolepis*, for *E. sagami^usa*, sp. n., JORDAN & SNYDER, J. Coll. Japan xv, p. 308, pl. xv, figg. 3 & 4, Japan.
- Hypoplectrodes armatus*, Cast., described and figured by WAITE, Rec. Austral. Mus. iv, p. 181, fig.
- Plectropoma uraschista*, Reuss (foss.). Remains described and figured by LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 48, pl. iii, figg. 7 & 8.
- Serranus huascarii*, sp. n. (?), THERESE VON BAYERN, Anz. Ak. Wiss. 1900, p. 208, Peru.
- ✓ *Bryttosus*, g. n. for *Serranus kawamebari*, Schleg., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 73.
- Centropristes striatus*, L. Photographs from life by SHUFELDT, Bull. U. S. Fish Comm. xix, pl. vi.
- Anthias fuscipinnis*, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 389, fig., Hawaiian Islands.
- ✓ *Coruscus*, g. n. for *Anthias berycoides*, Hilg., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 75.
- Lates niloticus*, L. On mummies prepared by the ancient Egyptians: LORTET & HUGOUNENQ, CR. Ac. Sci. cxxxiii, p. 613.
- D. S. JORDAN & J. O. SNYDER, P. U. S. Mus. xxiii, pp. 891-913, pls. xliii & xlv, review the *Apogoninae* of Japan.
- Apogon rueppellii*, Gthr., figured by WAITE, Rec. Austral. Mus. iv, pl. xxvii; *A. unicolor*, p. 749, pl. xxxiii, *doederleini*, p. 901, fig., and *kiensis*, p. 905, fig., spp. nn., JORDAN & SNYDER, P. U. S. Mus. xxiii, Japan.
- ✓ *Telescopias*, g. n., near *Melanostoma*, Döderl., for *T. gilberti*, sp. n., JORDAN & SNYDER, t. c. p. 909, pl. xlv, Japan.
- ✓ *Eteliscus*, g. n. for *Etelis berycoides*, Hilg., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 77.
- Aphareus furcatus*, Schleg. External characters and skeleton described and figured by JORDAN & STARKS, P. U. S. Mus. xxiii, p. 719, pls. xxviii & xxix; *A. flavivultus*, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 390, fig., Hawaiian Islands.

PSEUDOCHROMIDIDÆ.

Remarks by BOULENGER, Ann. Nat. Hist. (7) viii, p. 270.

Cichlops lineatus, Cast., described and figured by WAITE, Rec. Austral. Mus. iv, p. 191, pl. xxxi.

PRISTIPOMATIDÆ.

- Pomadasys schyrii*, sp. n., THERESE VON BAYERN, Anz. Ak. Wiss. 1900, p. 207, Guayaquil.
- ✓ *Parasclopsis*, g. n., allied to *Scolopsis*, for *P. townsendi*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 262, pl. vi, Sea of Oman, 198-225 faths.

SQUAMIPINNES.

Chaetodon mantelliger and *sphenospilus*, spp. nn., JENKINS, Bull. U. S. Fish Comm. xix, pp. 394 & 395, figg., Hawaiian Islands; *C. tricinctus*, sp. n., WAITE, Rec. Austral. Mus. iv, p. 45, fig., Lord Howe Id.

MULLIDÆ.

Upeneus pleurostigma, Benn., described and figured by WAITE, Rec. Austral. Mus. iv, p. 37, pl. v.

SPARIDÆ.

Lethrinus opercularis, C. & V., recorded from New South Wales by WAITE, Rec. Austral. Mus. iv, p. 54.

Pagrus major, Temm. & Schleg., *cardinalis*, Laup., and *tumifrons*, Temm. & Schleg., described and figured by KISHINOUE, J. Fisher. Bureau Tokyo x, pp. 32-40, pla. ii-vii.

Sargus oranensis, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 529, Upper Miocene, Algeria.

Boridia grossidens, Cuv. Note on a specimen from Argentina by C. BERG, Comun. Mus. Buenos Aires i, p. 308.

SCORPÆNIDÆ.

Scorpenopsis cacopsis, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 401, figg., Hawaiian Islands.

✓ *Snyderia*, g. n. for *S. jamanokami*, sp. n., JORDAN & STARKS, P. Calif. Ac. (3) ii, p. 381, pl. xx, Japan. [= *Tetraroge guentheri*, Blgr.—REC.]

NANDIDÆ.

Nandus borneensis, sp. n. (?), STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 422, Baram R., Borneo.

✓ *Polycentropsis*, g. n., for *P. abbreviata*, sp. n., BOULENGER, P. Z. S. 1901, i, p. 8, pl. iii, fig. 2, Niger Delta.

BERYCIDÆ.

✓ *Dinopteryx*, g. n., for *Hoplopteryx spinosus*, J. W. DAVIS (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 406.

SCIÆNIDÆ.

Cynoscion maculatum, J. & G., photograph from life by SHUFELDT, Bull. U. S. Fish Comm. xix, pl. v.

Larimus stahli, Poey, described by EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 361.

SILLAGINIDÆ.

Remarks by BOULENGER, Ann. Nat. Hist. (7) viii, p. 269.

Sillago bassensis, C. & V. Note by WAITE, Rec. Austral. Mus. iv, p. 190.

XIPHIIDÆ.

Histiophorus eocenicus, Middle Eocene, Bracklesham Bay, and *rotundus*, Tertiary, South Carolina, spp. nn. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 495, figg.

- Tetrapturus mitsukurii*, p. 304, pl. xvi, fig. 5, and *masara*, p. 305, spp. nn., JORDAN & SNYDER, J. Coll. Japan xv, Japan.
 ✓ *Acestrus*, g. n., for *A. ornatus*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 494, pl. xix, fig. 3, Lower Eocene, London Basin.

TRICHIURIDÆ.

- Lepidopus aomori*, sp. n., JORDAN & SNYDER, J. Coll. Japan xv, p. 303, Japan.

ACRONURIDÆ.

- Naseus hexacanthus*, Blkr. Note by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 427.

CARANGIDÆ.

- Aipichthys velifer*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 427, Upper Cretaceous, Lebanon.
Heterophthalmus palpebratus, Lacép., and *katopron*, Blkr. (?). Notes by VORDERMAN, Natuurk. Tijdschr. Nederl. Ind. lix, p. 72.

STROMATEIDÆ.

- Omosoma intermedium*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 420, Upper Cretaceous, Lebanon.

CORYPHÆNIDÆ.

- ✓ *Bentenia*, g. n., near *Pteraclis*, for *B. æsticola*, sp. n., JORDAN & SNYDER, J. Coll. Japan xv, p. 306, pl. xvi, fig. 6, Japan.

NOMEIDÆ.

- Nomeus gronovii*, Gm. Note on the habits by WAITE, Rec. Austral. Mus. iv, p. 39.

SCOMBRIDÆ.

- ✓ *Isurichthys*, g. n., for *Isurus macrurus*, Ag., and *I. orientalis*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 453, Tertiary, Persia.
 ✓ *Eothynnus*, g. n., for *E. salmoneus*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 457, Lower Eocene, London Basin.
 ✓ *Scombrinus*, g. n., for *S. nuchalis*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 461, Lower Eocene, London Basin.
Cybius excelsum and *bartonense*, spp. nn. (foss.), A. S. WOODWARD, t. c. p. 467, figg., Upper Eocene, Hampshire.
 ✓ *Eocoelopoma*, g. n., for *E. colei*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 470, Lower Eocene, London Basin.
 ✓ *Scombramphodon*, n. n. for *Amphodon*, Storms nec Peters, A. S. WOODWARD, t. c. p. 474; *S. crassidens*, sp. n. (foss.), id. ibid. p. 475, Lower Eocene, London Basin.
Luvarus imperialis, Raf. On a specimen from the coast of Cork, SCHARFF, Irish Natural. x, p. 190, fig.

TRACHINIDÆ.

G. A. BOULENGER, Ann. Nat. Hist. (7) viii, pp. 261-271, figg., remarks on the classification of the *Trachinidæ* and their allies.

- ✓ *Macrias*, g. n., apparently most nearly related to *Percophis*, for *M. amissus*, sp. n., GILL & TOWNSEND, Science (2) xiv, p. 937, Pacific Ocean, 1000 faths.

Astroscopeus guttatus, Abbott. Photograph from life by SHUFELDT, Bull. U. S. Fish Comm. xix, pl. vii.

NOTOTHENIIDÆ.

Remarks and synopsis of the genera, by BOULENGER, Ann. Nat. Hist. (7) viii, p. 265.

Parapercis pterostigma, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 402, fig., Hawaiian Islands.

COTTIDÆ.

Cottus, L. On the urogenital papilla, DUNCKER, Zool. Anz. xxiv, p. 153.

Blenniocottus recalvus [*globiceps*, Gthr. nec Gir.], sp. n., GREELEY, Bull. U. S. Fish Comm. xix, p. 9, fig., Coast of California.

- ✓ *Rusciculus*, g. n., allied to *Oxycottus*, for *R. rimensis*, sp. n., GREELEY, t. c. p. 13, fig., Coast of California.

- ✓ *Dialarchus*, g. n., allied to *Oligocottus*, for *D. snyderi*, sp. n., GREELEY, t. c. p. 14, fig., Coast of California.

- ✓ *Erimia*, g. n., allied to *Oligocottus*, for *E. rubellio*, sp. n., GREELEY, t. c. p. 18, fig., Coast of California.

Cottunculus subapinosus, sp. n., JENSEN, Vid. Medd. 1901, p. 214, off Iceland, 750-957 faths.

Lepidocottus gracilis, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 50, pl. v, fig. 8, Oligocene, Bohemia.

- ✓ *Ereunias*, g. n., near *Triglops*, JORDAN & SNYDER, P. Calif. Ac. (3) ii, p. 377; *E. grallator*, sp. n., id. ibid. p. 378, pl. xviii, Japan.

Peristethus laticeps, Schleg. Note by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 424.

CATAPHRACTI.

- ✓ *Draciscus*, g. n., closely allied to *Podothecus*, for *D. sachi*, sp. n., JORDAN & SNYDER, P. Calif. Ac. (3) ii, p. 379, pl. xix, Japan.

DISCOBOLI.

Liparis micropus, Gthr. On Norwegian specimens, COLLETT, Arch. Naturv. Christian. xxiii, No. 7, p. 2.

COMEPHORIDÆ.

Comephorus baicalensis, Lacep. Note on this fish, which proves to be viviparous and to die after parturition: B. DYBOWSKI, Kosmos polski xxvi, pp. 112-141, and Zool. Centrbl. viii, pp. 683-686, figg. Notes on habits and systematic position (a deep-sea *Cottus*): ZOGRAF, Tagebl. v. Int. Zool. Congr. No. 8, p. 9.

- ✓ *Cottocomephorus*, g. n., PELLEGRIN, Bull. Mus. Paris 1900, p. 354; *C. megalops*, sp. n., id. ibid., Lake Baikal.

GOBIIDÆ.

- D. S. JORDAN & J. O. SNYDER, P. U. S. Mus. xxiv, pp. 33-132, figg., review the *Gobiidæ* of Japan.
- Gobius ophthalmoporus*, Blkr., redescribed and figured by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 429, pl. xvii, fig. 1; *G. variabilis*, sp. n., id. ibid. p. 430, pl. xviii, fig. 4, Ternate; *G. pacilichthys*, sp. n., JORDAN & SNYDER, t. c. p. 52, fig., Japan; *G. percivali*, sp. n., BOULENGER, P. Z. S. 1901, ii, p. 152, fig., S. Arabia.
- Ctenogobius similis*, Gill, figured by JORDAN & SNYDER, P. U. S. Mus. xxiii, pl. xxxv; *C. abei*, p. 55, fig., *hadropterus*, p. 60, fig., *campbelli*, p. 62, fig., and *virgatulus*, p. 63, fig., spp. nn., JORDAN & SNYDER, op. cit. xxiv, Japan.
- Aboma tsushimæ*, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 759, and xxiv, p. 69, fig., Japan.
- ✓ *Chloea*, g. n., for *Gobius castaneus*, O'Sh., and allies, JORDAN & SNYDER, op. cit. xxiv, p. 78; *C. mororana* and *sarchynnus*, spp. nn., iid. ibid. pp. 80 & 82, figg., Japan.
- ✓ *Chasmias*, g. n., near *Gillichthys*, for *C. misakius*, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 761, pl. xxxvi, and xxiv, p. 84, Japan.
- Pterogobius daimio*, p. 91, fig., *sacalles*, p. 93, fig., and *zonoleucus*, p. 94, fig., spp. nn., JORDAN & SNYDER, op. cit. xxiv, Japan.
- ✓ *Suruga*, g. n., for *S. fundicola*, sp. n., JORDAN & SNYDER, t. c. p. 96, fig., Japan.
- ✓ *Sagamia*, g. n., for *S. russula*, sp. n., JORDAN & SNYDER, t. c. p. 100, fig., Japan.
- Chaeturichthys stigmatias*, Rich., redescribed by JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 764; *C. sciistius*, sp. n., iid. ibid. p. 107, fig., Japan.
- Asterropteryx abax*, sp. n., JORDAN & SNYDER, t. c. p. 40, fig., Japan.
- ✓ *Vireosa*, g. n., for *V. hanæ*, sp. n., JORDAN & SNYDER, t. c. p. 38, fig., Japan.
- ✓ *Hazeus*, g. n., for *H. otakii*, sp. n., JORDAN & SNYDER, t. c. p. 51, fig., Japan.
- ✓ *Ainosus*, g. n., for *A. geneionemus*, Hilgend., JORDAN & SNYDER, op. cit. xxiv, p. 109.
- Tridentiger bucco*, sp. n., JORDAN & SNYDER, t. c. p. 115, fig., Japan.
- ✓ *Astrabe*, g. n., for *A. lactisella*, sp. n., JORDAN & SNYDER, t. c. p. 119, fig., Japan.
- ✓ *Clariger*, g. n., for *C. cosmurus*, sp. n., JORDAN & SNYDER, t. c. p. 120, fig., Japan.
- ✓ *Eutænichthys*, g. n., for *E. gilli*, sp. n., JORDAN & SNYDER, t. c. p. 122, fig., Japan.
- Trypauchen waka*, sp. n., JORDAN & SNYDER, t. c. p. 127, fig., Japan.
- Gobiosoma pantherinum* and *digueti*, spp. nn., PELLEGRIN, Bull. Mus. Paris 1901, p. 165, Gulf of California.
- ✓ *Eleotris nanus*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 446, Nile.
- ✓ *Rhyacichthys*, n. n. for *Platyptera*, C. & V. nec Meig., BOULENGER, t. c. p. 267.

BLENNIIDÆ.

- Lumpenus lampetraformis*, Walb. Notes by T. W. FULTON, Rep. Fish. Board Scotland xix, iii, p. 287.

MASTACEMBELIDÆ.

- Mastacembelus frenatus*, pp. 5 & 159, pl. xx, fig. 3, and *taniatus*, pp. 6 & 160, pl. xx, fig. 4, spp. nn., BOULENGER, Ann. Nat. Hist. (7) vii, and Tr. Zool. Soc. London xvi, L. Tanganyika; *M. greshoffi*, sp. n., id. Ann. Nat. Hist. (7) vii, p. 81, Congo.

SPHYRÆNIDÆ.

Sphyræna helleri and *snodgrassi*, spp. nn., JENKINS, Bull. U.S. Fish Comm. xix, pp. 387 & 388, figg., Hawaiian Islands.

ATHERINIDÆ.

Review of the Japanese species, by JORDAN & STARKS, P. U. S. Mus. xxiv, pp. 198-206.

Atherina woodwardi, p. 200, figg., and *tsuruga*, p. 202, figg., spp. nn., JORDAN & STARKS, t. c., Japan; *A. macrocephala*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 359, Upper Eocene, Monte Bolca.

✓ *Atherion*, g. n., for *A. elymus*, sp. n., JORDAN & STARKS, t. c. p. 203, fig., Japan.

✓ *Ios*, g. n., for *I. flos-maris*, sp. n., JORDAN & STARKS, t. c. p. 204, fig., Japan.

MUGILIDÆ.

Scyllæmus latifrons, Cope (foss.). Note and figure by STEWART, Univ. Survey Kansas vi, Paleont. ii, p. 384, pl. lxxii, fig. 2.

GASTROSTEIDÆ.

Pygosteus steindachneri, n. n. for *Gastrosteus japonicus*, Stdr. nec Houtt., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 747.

FISTULARIIDÆ.

✓ *Protaulopsis*, g. n., for *P. bolcensis*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 371, Upper Eocene, Monte Bolca.

OPHIOCEPHALIDÆ.

Ophiocephalus rhodotænia, Blkr. Note by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 435; *O. baramensis*, sp. n., id. ibid. pl. xvii, fig. 3, Baram R., Borneo.

LUCIOCEPHALIDÆ.

Luciocephalus pulcher, Blkr. Note by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 434.

TRACHYPTERIDÆ.

F. MAZZA, Int. Monatsschr. Anat. xviii, pp. 129-141, pl. v, describes the digestive apparatus of *Regalecus glesne*, Asc.

Trachypterus ishikawæ and *yimæ*, spp. nn., JORDAN & SNYDER, J. Coll. Japan xv, pp. 310 & 311, pl. xvii, figg. 9 & 10, Japan.

NOTACANTHIDÆ.

✓ *Pronotacanthus*, g. n., for *Anguilla sahel-almæ*, J. W. Davis (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 169.

ACANTHOPTERYGII PHARYNGOGNATHI.

POMACENTRIDÆ.

- Amphiprion frenatus*, Brev. Note by JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 752.
Pomacentrus rathbuni, sp. n., JORDAN & SNYDER, t. c. p. 754, pl. xxxiv, Japan; *P. celestis*, sp. n., JORDAN & STARKS, P. Calif. Ac. (3) ii, p. 383, pl. xxi, Japan.
Eupomacentrus marginatus, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 391, fig., Hawaiian Islands.
Chromis velox, sp. n., JENKINS, t. c. p. 393, fig., Hawaiian Islands.

LABRIDÆ.

- Tautoga onitis*, L. Photograph from life by SHUFELDT, Bull. U. S. Fish Comm. xix, pl. v.
Pseudolabrus ruber, Cast., described and figured by WAITE, Rec. Austral. Mus. iv, p. 185, pl. xxviii.
Macropharyngodon aquiloto, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 46, fig., Hawaiian Islands.
Halichares iridescens and *lao*, spp. nn., JENKINS, t. c. pp. 47 & 48, figg., Hawaiian Islands.
Coris auricularis, C. & V., figured by WAITE, Rec. Austral. Mus. iv, pl. xxx; *C. lepomis*, sp. n., JENKINS, t. c. p. 48, fig., Hawaiian Islands.
Hemicoris remediis and *keleipionis*, spp. nn., JENKINS, t. c. pp. 49 & 51, figg., Hawaiian Islands.
Thalassoma ancitense, Gthr., described and figured by WAITE, t. c. p. 187, pl. xxix; *T. pyrrhovinctum*, sp. n., JENKINS, t. c. p. 51, fig., Hawaiian Islands.
Hemitautoga centiquadra, Comm. Note by WAITE, Rec. Austral. Mus. iv, p. 54.
Iniistius cacatua, sp. n., WAITE, t. c. p. 41, pl. vii, Lord Howe Id.; *I. leucozonus* and *verater*, spp. nn., JENKINS, t. c. pp. 54 & 55, figg., Hawaiian Islands.
Novaculichthys woodi and *entargyreus*, spp. nn., JENKINS, t. c. pp. 52 & 53, figg., Hawaiian Islands.
Hemipteronotus umbrilatus, sp. n., JENKINS, t. c. p. 53, fig., Hawaiian Islands.
Cheilinus zonurus, sp. n., JENKINS, t. c. p. 56, fig., Hawaiian Islands.
Anampses evermanni, sp. n., JENKINS, t. c. p. 57, fig., Hawaiian Islands.
Pseudocheilinus octotania, sp. n., JENKINS, t. c. p. 64, fig., Hawaiian Islands.
Charops azurio, n. n. for *Labrus japonicus*, Schleg. nec Houtt., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 747.
Calotomus irradians, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 58, fig., Hawaiian Islands.
Scarus brunneus, p. 59, *gilberti*, p. 59, *paluca*, p. 60, *ahula*, p. 61, and *miniatus*, p. 62, spp. nn., JENKINS, t. c., figg., Hawaiian Islands.
Pseudoscarus jordani, sp. n., JENKINS, t. c. p. 63, fig., Hawaiian Islands; *P. californiensis*, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 163, Gulf of California.

CICHLIDÆ.

- Paratilapia serranus*, Pfeff. Note by BOULENGER, P. Z. S. 1901, ii, p. 161; *P. nigrofasciata*, sp. n., PELLEGRIN, Bull. Mus. Paris 1900, p. 353, Upper Congo; *P. vittata*, pp. 1 & 150, pl. xviii, fig. 1, L. Kivu, *aurita*,

- pp. 2 & 150, pl. xix, fig. 2, L. Tanganyika, *calliura*, pp. 2 & 151, pl. xix, fig. 3, L. Tanganyika, *stenosoma*, pp. 2 & 151, pl. xvii, fig. 1, L. Tanganyika, and *nigripinnis*, pp. 3 & 152, pl. xix, fig. 1, L. Tanganyika, spp. nn., BOULENGER, Ann. Nat. Hist. (7) vii, and Tr. Zool. Soc. London xvi.
- Bathybates fasciatus*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 3, and Tr. Zool. Soc. London xvi, p. 153, pl. xvii, fig. 2, L. Tanganyika.
- Pelmatochromis*, Sldr. Synopsis of the spines by BOULENGER, Ann. Nat. Hist. (7) viii, p. 115; *P. ansorgii*, *pulcher*, and *taeniatus*, spp. nn., BOULENGER, P. Z. S. 1901, i, pp. 8-10, pl. iv, figg. 1-3, Niger Delta; *P. batesii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 114, Gaboon.
- Trematocara unimaculatum*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, and Tr. Zool. Soc. London xvi, pp. 3 & 155, pl. xviii, fig. 3, L. Tanganyika.
- ✓ *Gephyrochromis*, g. n., allied to *Paratilapia*, for *G. moorii*, sp. n., BOULENGER, ll. cc. pp. 4 & 156, pl. xx, fig. 1, L. Tanganyika.
- Tilapia philander*, M. Web. Notes on the breeding habits by N. ABRAHAM, Ann. Nat. Hist. (7) viii, p. 321; *T. pleurotænia*, pp. 4 & 157, pl. xviii, fig. 4, *trematocephala*, pp. 4 & 157, pl. xix, fig. 6, and *boops*, pp. 5 & 158, pl. xix, fig. 5, spp. nn., BOULENGER, ll. cc., L. Tanganyika.
- Petrochromis andersonii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 13, Albert Edward Nyanza.
- ✓ *Asprotilapia*, g. n., allied to *Tilapia*, for *A. leptura*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, and Tr. Zool. Soc. London xvi, pp. 5 & 159, pl. xx, fig. 2, L. Tanganyika.
- Ectodus longianalis*, Blgr., figured by BOULENGER, Tr. Zool. Soc. London xvi, pl. xix, fig. 4.
- Xenotilapia ornatipinnis*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 3, Tr. Zool. Soc. London xvi, p. 154, pl. xviii, fig. 2, L. Tanganyika.

ANACANTHINI.

LYCODIDÆ.

- Lycodes*, Reinh. Remarks by JENSEN, Vid. Medd. 1901, p. 202, and by SMITT, Bih. Svenska Ak. xxvii, iv, No. 4, pl. —; *L. similis*, p. 205, Jan Mayen, 371 faths., *eudipleurostictus*, p. 206, Faroe to Spitzbergen, 350-471 faths., *microcephalus*, p. 206, Iceland, 799 faths., *atlanticus*, p. 207, E. Coast of N. America, 516-1423 faths., *platyrhinus*, p. 208, Jan Mayen to Iceland, 1010 faths., *celatus*, p. 208, Kara-Havet, 59 faths., *agnostus*, p. 209, Kara-Havet, 46-100 faths., spp. nn., JENSEN, l. c.
- Lycenchelys ingolfianus*, p. 210, Davis Straits, 393 faths., *flagelllicanda*, p. 210, Spitzbergen to Faroe, 459-1089 faths., and *ophidium*, p. 212, Iceland, 1089 faths., spp. nn., JENSEN, l. c.

GADIDÆ.

- Observations on the rate of growth of *Gadus morrhua*, *øglefinus*, *merlangus*, and *esmarkii*, on the coast of Scotland, T. W. FULTON, Rep. Fish. Board Scotland xix, iii, pp. 154-228, pls. ix-xvi.
- Gadus morrhua*, L. and *G. merlangus*, L. On the larvæ, MASTERMAN, Tr. R. Soc. Edinb. xl, p. 1, pls. i-iii; *G. morrhua*, L., on the food, B. SHARP, P. Ac. Philad. 1901, p. 2; *G. esmarkii*, Nilss., notes by T. W. FULTON, t. c. p. 282; *G. argenteus*, Guichen, on Norwegian specimens, COLLETT, Arch. Naturv. Christian. xxiii, No. 7, p. 5.

OPHIDIIDÆ.

- Brotula marginalis*, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 403, fig., Hawaiian Islands.
- ✓ *Watasea*, g. n., allied to *Sirembo*, for *W. sivicola*, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 765, pl. xxxvii, Japan.
- Hoplobrotula armata*, Schleg., redescribed and figured by JORDAN & SNYDER, t. c. p. 767, pl. xxxviii.

PLEURONECTIDÆ.

- L. FACCIOLOÀ, Boll. Soc. zool. Ital. (2) i, pp. 169-189, pl. —, writes on the migration of the eye in the young Pleuronectids.
- FABRE-DOMERGUE & BIÉTRIX have made experiments on the development of *Solea vulgaris*, CR. Ac. Sci. cxxxii, pp. 1136-1138.
- Pleuronectes platessa*, L., is exhaustively monographed by F. J. COLE & J. JOHNSTONE, L. M. B. C. Memoirs viii, London, 1901, 8vo, 252 pp., 11 pls.
- Limanda herzensteini*, n. n. for *Pleuronectes japonicus*, Herz. nec Houtt., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 746.
- Reinhardtius matsuurae*, sp. n., JORDAN & SNYDER, J. Coll. Japan xv, p. 309, pl. xvi, figg. 7 & 8, Japan.
- ✓ *Apsetta*, g. n., allied to *Rhombosolea*, for *A. thompsoni*, sp. n., KYLE, P. Z. S. 1900, p. 986, figg., New Zealand.
- Solea lutea*, Risso. On a specimen from Norway, COLLETT, Arch. Naturv. Christian. xxiii, No. 7, p. 17.
- ✓ *Zebrias*, g. n. for *Synaptura zebrina*, Schleg., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 123.
- ✓ *Usinosta*, g. n. for *Plagusia japonica*, Schleg., JORDAN & SNYDER, t. c.
- ✓ *Areliscus*, g. n. for *Cynoglossus joyneri*, Gthr., JORDAN & SNYDER, t. c.

PHYSOSTOMI.

SILURIDÆ.

- Clarias moorii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 13, Albert Nyanza.
- Callichrous (Silurodes) borneensis*, sp. n., STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 445, pl. xviii, fig. 3, Baram R., Borneo.
- Eutropius mentalis*, sp. n., BOULENGER, Poiss. Bass. Congo p. 269, Gold Coast.
- ✓ *Physailia*, g. n., near *Ailia*, Gray, and *Parailia*, Blgr., for *P. pellucida*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 445, Omdurman.
- Diplomystes papillosus*, Val. Recorded from Argentina by C. BERG, Comun. Mus. Buenos Aires i, p. 293.
- Amiurus natalis*, Les. On a specimen without ventral fins, EIGENMANN & COX, Amer. Natural. xxxv, p. 34; *A. melas*, Raf., on variations in the barbels, iid. ibid. p. 35, figg.; *A. nebulosus*, Les., on the breeding habits, EYLESHYMER, t. c. p. 911; photograph from life by SHUFFELDT, Bull. U. S. Fish Comm. xix, pl. viii.
- Macrones micracanthus*, Blkr., and *nemurus*, C. & V., notes by STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 446.
- Chrysichthys brachynema*, Blgr., described and figured by BOULENGER, Tr. Zool. Soc. London xvi, p. 148, pl. xv; *C. sharpii*, sp. n., id., Ann. Nat. Hist. (7) vii, p. 81, L. Mweru.

- Gephyroglanis*, Blgr. Synopsis of the species by BOULENGER, Ann. S. African Mus. ii, p. 227; *G. sclateri*, sp. n., id. ibid. p. 228, pl. xiii, Vaal R., S. Africa.
- Piratinga filamentosa*, Licht. (*piratinga Pira-aiba*, Goeldi) described and figured by GOELDI, Bol. Mus. Para. iii, p. 181, 2 pla.
- Pimelodus*, C. & V. On its supposed occurrence in Africa, Poche, Zool. Anz. xxiv, p. 569; *P. labrosus*, Lüttk., and *valenciennisi*, Lüttk. On specimens from Argentina, C. BERG, Comun. Mus. Buenos Aires i, pp. 296 & 297.
- ✓ *Goeldiella*, g. n., for *Pimelodus eques*, M. & T., EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 353.
- ✓ *Iheringichthys*, g. n., for *Pimelodus labrosus*, Kröy., EIGENMANN & NORRIS, t. c. p. 354.
- ✓ *Bergiella*, g. n., for *Pimelodus westermanni*, Reinh., EIGENMANN & NORRIS, t. c. p. 355.
- ✓ *Bergiaria*, n. n. for *Bergiella*, Eigenm. & Norris, preoccupied, EIGENMANN & NORRIS, Comun. Mus. Buenos Aires i, p. 272.
- ✓ *Perugia*, g. n., for *Pirinampus agassizi*, Sldr., EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 355.
- Nannoglanis bifasciatus*, sp. n., EIGENMANN & NORRIS, t. c. p. 350, S. Paulo, Brazil.
- ✓ *Imparfinis*, g. n., near *Rhamdella*, EIGENMANN & NORRIS, t. c. p. 351; *I. piperatus*, sp. n., iid. ibid. p. 352, S. Paulo, Brazil.
- Auchenoglanis*, Gthr. *Pimelodus guttatus*, Lönnberg, is referred to this genus by BOULENGER, Ann. Nat. Hist. (7) viii, p. 448.
- Anoplopterus*, Pfeff. Synopsis of the species by BOULENGER, t. c. p. 447; *A. longirostris*, sp. n., id. ibid., Cameroon.
- Arius brevirostris*, sp. n., STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 447, Baram R., Borneo.
- Læmonema borbonica*, Sauv. On its habitat, Poche, Zool. Anz. xxiv, p. 570.
- Auchenopterus nuchalis*, Spix. Recorded from Argentine by C. BERG, Comun. Mus. Buenos Aires i, p. 301.
- Trachycorystes albicrus*, sp. n., C. BERG, t. c. p. 303, Rio de la Plata.
- Glyptosternum kikenthali*, sp. n., STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 448, pl. xviii, fig. 5, Baram R., Borneo.
- Doras lævigatulus*, sp. n., C. BERG, Comun. Mus. Buenos Aires i, p. 298, Rio de la Plata.
- Oxydoras kneri*, Blkr., recorded from Uruguay by C. BERG, t. c. p. 300.
- Synodontis afro-fischeri*, Hilgend., redescribed by BOULENGER, P. Z. S. 1901, ii, p. 161; *S. granulatus*, Blgr., described and figured by BOULENGER, Tr. Zool. Soc. London xvi, p. 149, pl. xvi; *S. caudovittatus*, p. 10, *filamentosus*, p. 10, and *eupterus*, p. 11, spp. nn., id. Ann. Nat. Hist. (7) viii, White Nile; *S. tholloni*, sp. n., id. Poiss. Bass. Congo, p. 304, Ogowe.
- Acanthicus hystrix*, Spix. Remarks by G. HAGMANN, Zool. Anz. xxiv, p. 173, and K. BERG, t. c. p. 586.
- Loricaria aurea*, sp. n., THERESE VON BAYERN, Anz. Ak. Wiss. 1900, p. 206, R. Magdalena.
- Pygidium quechnorum*, sp. n., THERESE VON BAYERN, t. c. p. 207, Arequipa, S. Peru.

SCOPELIDÆ.

- F. SUPINO, Ric. Lab. Anat. Univ. Roma, viii, No. 3, pp. 1-25, pls. xvi-xviii, describes and figures the skull of a *Scopelus*.
- On an early reference to a fish of the genus *Plaggyodus* or *Alepidosaurus*, GÜNTHER, Ann. Nat. Hist. (7) vii, p. 35.
- ✓ *Evermanella*, n. n. for *Odontostomus*, Cocco nec Beck, FOWLER, P. Ac. Philad. 1901, p. 211.

- Sardinioides pusillus* and *attenuatus*, spp. nn. (foss.), A. S. WOODWARD, Cat. Foss. Fish iv, pp. 240 & 241, pl. xii, figg. 2, 3, 5, Upper Cretaceous, Lebanon.
- Microcoelia libanica*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 252, Upper Cretaceous, Lebanon.
- ✓ *Apatodus*, g. n., for *Pachyrhizodus glyphodus*, Blake (foss.), A. S. WOODWARD, t. c. p. 258; *A. lanceolatus*, sp. n. (foss.), id. ibid. p. 264, pl. xiii, fig. 7, Turonian, Kent.

ENCHODONTIDÆ.

- Enchodus shumardi*, Leidy, *petrosus*, Cope, *dirus*, Leidy, *dolichus*, Cope, *parvus*, Stewart, and *amicrodus*, Stewart (foss.), noticed by STEWART, Univ. Survey Kansas vi, Paleont. ii, pp. 375-379, pl. lxx; *E. pulchellus* and *annectens*, spp. un. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, pp. 193 & 195, pl. xi, figg. 2-5, Turonian, Kent and Sussex.
- Stratodus apicalis*, Cope (foss.). On fragments of the skull, STEWART, t. c. p. 328, pls. lx & lxi.
- Leptecodon rectus*, Willist. (foss.), described and figured by WILLISTON, Univ. Survey Kansas vi, Paleont. ii, p. 380, pl. lxxiii.
- Empo nepæolica*, Cope, p. 332, pl. lix, *lisbonensis*, Stew., p. 337, pl. lxi, fig. 10, and *semianiceps*, Cope, p. 338, pl. lxi, figg. 6-9 (foss.). Notes and figures by STEWART, t. c.

CYPRINIDÆ.

- S. KAMENSKY, Cypriniden der Kaukasusländer (Tiflis, 1901), monographs the Cyprinids of the Caucasus and neighbouring districts.
- G. A. BOULENGER, Ann. Nat. Hist. (7) viii, p. 186, fig., describes a super-branchial organ in *Hypophthalmichthys molitrix*, C. & V.
- Discognathus*, Heck. Notes on the specific characters, BOULENGER, P. Z. S. 1901, ii, p. 160; *D. johnstoni*, p. 159, Victoria Nyanza, *blanfordi*, p. 160, Abyssinia, and *vinciguerra*, p. 160, Nile, spp. nn., id. ibid.
- Labeo victorianus*, sp. n., BOULENGER, P. Z. S. 1901, ii, p. 159, Victoria Nyanza.
- Capoëta tanganica*, Blgr., described and figured by BOULENGER, Tr. Zool. Soc. London xvi, p. 143, pl. xii, fig. 1.
- Barbus goktschaicus*, Kessl., pl. vii, *armenicus*, Kessl., pl. viii, *sursumicus*, Kam., pl. ix, and *mursa*, Güld., pls. x & xi, figured by KAMENSKY, Cyprin. Kaukas.; *B. nasus*, Gthr., redescribed and figured by GÜNTHER, Nov. Zool. viii, p. 368, pl. xix; *B. platyrhinus*, Blgr., *altianalis*, Blgr., *serrifer*, Blgr., and *tropidolepis*, Blgr., described and figured by BOULENGER, t. c. pp. 144 & 145, pls. xii-xiv; *B. eduardianus* and *fergusonii*, spp. un., id., Ann. Nat. Hist. (7) viii, p. 12, Albert Edward Nyanza; *B. pumilus*, sp. n., id. ibid. p. 444, White Nile; *B. harterti* and *rothschildi*, spp. nn., GÜNTHER, t. c. pp. 367 & 368, pl. xviii, Morocco.
- Crossochilus styani*, sp. n., BOULENGER, P. Z. S. 1901, i, p. 268, pl. xxiii, fig. 1, Ningpo.
- Gobio lepidolæmus*, Kessl., var. n. *caucasica*, KAMENSKY, Cyprin. Kaukas. p. 6, Caucasus; *G. uranoscopus*, Ag., var. n. *caucasica*, id. ibid. p. 9, Caucasus; *G. macropterus*, sp. n., id. ibid. p. 10, Caucasus; *G. nummifer*, sp. n., BOULENGER, P. Z. S. 1901, i, p. 269, pl. xxiii, fig. 2, Ningpo; *G. major* and *vicinus*, spp. nn. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. pp. 38 & 39, pl. v, fig. 7, and pl. ii, fig. 5, Oligocene, Bohemia.

- Pseudogobio drakei*, sp. n., ABBOTT, P. U. S. Mus. xxiii, p. 486, fig., Tien-Tsin, China.
- Hemibarbus barbatus*, Schleg. Note by ABBOTT, t. c. p. 487.
- Leucogobio guentheri* and *jordani*, spp. nn., ISHIKAWA, Annot. zool. Japon. iii, pp. 161, 163, pl. iii, L. Biwa, Japan.
- Chondrostoma colchicum*, Kessl., var. n. *tschorochica*, KAMENSKY, Cyprin. Kaukas. p. 90, Caucasus; *C. avarasicum*, sp. n., id. ibid. p. 83, Caucasus; *C. laticauda*, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 46, pl. vii, fig. 2, Oligocene, Bohemia.
- Leuciscus frinii*, Nordm., figured by KAMENSKY, Cyprin. Kaukas. pl. xii; *L. sciustius*, sp. n., ABBOTT, P. U. S. Mus. xxiii, p. 487, fig., Tien-Tsin, China; *L. jouyi*, sp. n., JORDAN & SNYDER, t. c. p. 741, pl. xxxi, Japan; *L. turneri*, Lucas (foss.), figured by LUCAS, Rep. U. S. Geol. Surv. xxi, ii, pl. xxxi; *L. fritschii*, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 43, pl. vii, fig. 1, Oligocene, Bohemia.
- Squalius agdamicus*, sp. n., KAMENSKY, op. cit. p. 49, Caucasus.
- Tinca obruncata*, p. 35, pl. ii, fig. 4, *macropterygia*, p. 36, pl. v, fig. 6, and *lignitica*, p. 37, pl. v, fig. 5, spp. nn. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf., Oligocene, Bohemia.
- Paraphoxinus metohiensis*, sp. n., STEINDACHNER, Anz. Ak. Wiss. 1901, p. 197, Dalmatia and Herzegovina.
- Alburnus lucidus*, Heck. On the food of young specimens, ZACHARIAS, Zool. Anz. xxiv, p. 390; *A. hohenackeri*, Kessl., var. n. *latifrons*, and *A. lucidus*, Heck., var. n. *macropterus*, KAMENSKY, Cyprin. Kaukas. pp. 111, 113, Caucasus; *A. alasanicus* and *latissimus*, spp. nn., id. ibid. pp. 104, 120, Caucasus.
- Toxabramis argentifer*, sp. n., ABBOTT, P. U. S. Mus. xxiii, p. 484, fig., Tien-Tsin, China.
- ✓ *Culticola*, g. n., for *C. emmelas*, sp. n., ABBOTT, t. c. p. 485, fig., Tien-Tsin, China.
- Barilius moorii*, Blgr., and *tanganicae*, Blgr., described and figured by BOULENGER, Tr. Zool. Soc. London xvi, p. 146, pl. xiv, figg. 2 & 3; *B. loati*, sp. n., id., Ann. Nat. Hist. (7) vii, p. 80, Upper Nile; *B. ubungiensis*, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 250, Uhang.
- *Oparichthys platypus*, Schleg. Head of breeding male figured by BOULENGER, P. Z. S. 1901, t. pl. xxiv, fig. 2; *O. acanthogenys*, sp. n., id. ibid. p. 269, pl. xxiv, fig. 1, Ningpo.
- Parapelecus macherius*, sp. n., ABBOTT, P. U. S. Mus. xxiii, p. 488, fig., Tien-Tsin, China.
- Culter tientsinensis*, sp. n., ABBOTT, t. c. p. 489, fig., Tien-Tsin, China.
- *Ichthyacis*, g. n., for *Xenocypris steenackeri*, SAUV., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 48.
- Herapnephus guentheri*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. v, p. 322, Tertiary, Sumatra.
- Cobitis biez*, n. n. for *C. japonicus*, Schleg. nec HOUTE, JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 748.
- Nemachilus tener*, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 33, pl. ii, figg. 2 & 3, Oligocene, Bohemia.
- Homalocoma stenocoma*, sp. n., BOULENGER, P. Z. S. 1901, t. pl. xxv, fig. 3, Ningpo.
- Gastrimyzon borneensis*, Gthr. Note by STEINDACHNER, Arch. Senckenb., Ges. xv, p. 455.

CHARACINIDÆ

- Sarcodices odor*, BL. Note on the eggs and young, BOULENGER, Tr. Zool. Soc. London xvi, p. 139, pl. xiii, figg. 2 & 3, Congo and L. Nyassa.
- Poiss. Exam. Congo, p. 139, Congo and L. Nyassa.

- Alestes*, M. & T. Synopsis of the species by BOULENGER, Ann. Nat. Hist. (7) viii, p. 486.
- Tetragonopterus multifasciatus*, sp. n., EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 358, S. Paulo, Brazil; *T. rubropictus*, sp. n., C. BERG, Comun. Mus. Buenos Aires i, p. 305, R. Molinos, Andes of Argentina; *T. longipinnis*, sp. n., POPTA, Notes Leyden Mus. xxiii, p. 85, fig., Dutch Guiana.
- ✓ *Catabasis*, g. n., allied to *Salminus*, for *C. acuminatus*, sp. n., EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 358, S. Paulo, Brazil.
- Myletes tiete*, sp. n., EIGENMANN & NORRIS, t. c. p. 359, S. Paulo, Brazil.
- Leporinus bahiensis*, Stdr. Note by POPTA, Notes Leyden Mus. xxiii, p. 89; *L. muyscorum*, sp. n., THERESE VON BAYERN, Anz. Ak. Wiss. 1900, p. 206, R. Lebrija, Magdalena System.
- Parodon affinis*, Stdr., described by EIGENMANN & NORRIS, Rev. Mus. Paulista iv, 1900, p. 356; *P. tortuosus*, sp. n., iid. ibid., S. Paulo, Brazil.
- Distichodus*, M. & T. Synopsis of the species by BOULENGER, Ann. Nat. Hist. (7) viii, p. 510; *D. hypostomatus*, sp. n., PELLEGRIN, Bull. Mus. Paris 1900, p. 351, Ogowé.
- ✓ *Hemistichodus*, g. n. (*Monostichodus*, Vaill. nom. nud.), for *H. vaillanti*, sp. n., PELLEGRIN, t. c. p. 352, Ogowé.

CYPRINODONTIDÆ.

- Xenodum multipunctatum*, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 206, Guadalajara, Mexico.
- Haplochilus loati*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 446, White Nile.
- Girardinus decemmaculatus*, Jen. On the breeding habits, ZOLOTNISKY, Arch. Zool. exp. Notes (3) ix, pp. lxxv-lxxi.
- Prolebias egeranus* and *pulchellus*, spp. nn. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. pp. 28, 31, pl. v, figg. 1, 3, Oligocene, Bohemia.
- ✓ *Pachylebias*, g. n., for *Lebias crassicaudatus*, Ag. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 294.

SCOMBRESOCIDÆ.

- Hemirhamphodon kükenthali*, sp. n., STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 450, pl. xvii, fig. 2, Baram R., Borneo.
- ✓ *Hemioxocetus*, g. n., near *Hemirhamphus*, FOWLER, P. Ac. Philad. 1901, p. 293; *H. caudimaculatus*, sp. n., id. ibid. p. 294, fig., off W. Coast of Mexico.

GALAXIIDÆ.

- Galaxias*, Cuv. On growth and variations in Patagonian species, SMITH, Bih. Svenska Ak. xxvi, iv, No. 13, p. 9, pls. ii & iii. On the burrowing habits of a species of this genus in Tasmania, T. S. HALL, Victorian Natural. xviii, p. 65.
- ✓ *Cromeria*, g. n. differing from *Galaxias* in the small edentulous mouth and the narrow gill-openings, for *C. nilotica*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 445, White Nile.

MORMYRIDÆ.

- Mormyrops boulengeri* and *furciden*, spp. nn., PELLEGRIN, Bull. Mus. Paris 1900, pp. 349 & 350, Upper Congo.

- Petrocephalus keatingii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) viii, p. 444, White Nile.
- Marcusenius longianalis*, sp. n., BOULENGER, P. Z. S. 1901, p. 5, pl. iii, fig. 1, Niger Delta.
- Gnathonemus abadii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) vii, p. 80, Upper Niger.
- Hyperopisus bebe*, Lacep. Note on the eggs and larvæ, BUDGETT, Tr. Zool. Soc. London xvi, p. 130, figg., pl. xi, fig. 10.
- Gymnarchus niloticus*, Cuv. Notes on the breeding habits and development, BUDGETT, t. c. p. 126, fig., pl. xi, figg. 4 & 5.

STERNOPTYCHIDÆ.

- F. SUPINO, Ric. Lab. Anat. Univ. Roma, viii, No. 3, pp. 1-25, pls. xvi-xviii, describes and figures the skulls of *Chauliodus* and *Argyropelecus*.
- Argyropelecus hemigymnus*, Cocco, and *aculeatus*, C. & V. On Norwegian specimens, COLLETT, Arch. Naturv. Christian. xxiii, No. 7, pp. 19 & 22.
- Photichthys hemingi*, sp. n., MCARDLE, Ann. Nat. Hist. (7) viii, p. 521, Bay of Bengal, 475-880 faths.
- Cyclothone microdon*, Gthr. Note by LO BIANCO, Mt. Stat. Neapel xv, p. 429.

SALMONIDÆ.

- Salmo salar*, L. On its migrations in Scottish Rivers, HARVIE-BROWN, Ann. Scott. Nat. Hist. 1901, pp. 18, 82 & 202; Sir H. MAXWELL, t. c. p. 146. On the so-called variety *hamatus*, E. OLIVIER, Rev. Sci. Bourbonnais xiv, p. 240; *S. trutta*, L. On some monstrous (Cyclopiæ) embryos, GEMMILL, Rep. Brit. Ass. 1900, p. 784; *S. macrostigma*, A. Dum., recorded from Sardinia by BOULENGER, Ann. Nat. Hist. (7) viii, p. 14; *S. irideus*, Gibb. On a specimen with malformed head, E. YUNG, Rev. Suisse Zool. ix, p. 307, figg.; *S. teplitiensis*, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 26, pl. iv, fig. 5, Oligocene, Bohemia.
- Thaumaturus deichmulleri*, sp. n. (foss.), LAUBE, t. c. p. 21, pl. iii, figg. 5 & 6, Oligocene, Bohemia.
- ✓ *Protothymallus*, g. n., LAUBE, t. c. p. 22, for *Thaumaturus lusatus*, Laube (foss.), which is described and figured, p. 23, pl. iv, figg. 1-3; *P. princeps*, sp. n. (foss.), id. ibid. p. 25, pl. iv, fig. 4, Oligocene, Bohemia.
- Argentina ophyræna*, L., and *silus*, Ascan. Notes by T. W. FULTON, Rep. Fish. Board Scotland xix, iii, pp. 285 & 286.
- Salanx hyalocranius*, sp. n., ABBOTT, P. U. S. Mus. xxiii, p. 490, fig., Tien-Tsin, China.

HAPLOCHITONIDÆ.

- Haplochiton zebra*, Jen., and *tæniatus*, Jen. Notes by SMITT, Bih. Svenska Ak. xxvi, iv, No. 13, p. 3, pl. i.
- Prototroctes marena*, Gthr. Recorded from New South Wales by WAITE, Rec. Austral. Mus. iv, p. 53.

GONORHYNCHIDÆ.

- Charitosomus major*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 272, pl. xv, fig. 3, Upper Cretaceous, Lebanon.

OSTEOGLOSSIDÆ.

Remarks on the genera of this family by BOULENGER, Ann. Nat. Hist. (7) viii, p. 514.

Heterotis niloticus, Cuv. Notes on the breeding habits and development: BUDGETT, Tr. Zool. Soc. London xvi, p. 128, fig., pl. xi, figg. 6 & 7.

- ✓ *Brychatus*, g. n., for *B. muelleri*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 76, pl. i, London Clay, Sheppey.

PHRACTOLÆMIDÆ.

A new family, intermediate between the *Osteoglossidæ* and *Clupeidæ*: BOULENGER, P. Z. S. 1901, i, p. 5.

- ✓ *Phractolæmus*, g. n., for *P. ansorgii*, sp. n., id. ibid. p. 6, pl. ii, Niger Delta.

CLUPEIDÆ.

Clupea sprattus, L. On its reproduction in the Gulf of Finland: G. SCHNEIDER, Zool. Anz. xxv, p. 9. *C. catopygoptera*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 148, pl. vi, fig. 2, Upper Eocene, Monte Bolca.

- ✓ *Chanoides*, g. n., for *Clupea macropoma*, Ag. (foss.), A. S. WOODWARD, t. c. p. 63.

- ✓ *Konosirus*, g. n., for *Chatoëssus nasus*, Bl., and *Ch. punctatus*, Schleg., JORDAN & SNYDER, Annot. zool. Japon. iii, p. 53.

Leptichthys agilis, sp. n. (foss.), STEWART, Univ. Survey Kansas vi, Paleont. ii, p. 372, pl. lxxii, fig. 1, Cretaceous of Kansas.

- ✓ *Halecopsis*, g. n., for *Osmroides insignis*, Delv. & Oetl. (foss.), A. S. WOODWARD, t. c. p. 133.

Osmroides levis, sp. n. (foss.), A. S. WOODWARD, t. c. p. 15, Turonian, Kent and Sussex.

Megalops priscus, p. 24, pl. iii, figg. 3-6, and *oblongus*, p. 26, spp. nn. (foss.), A. S. WOODWARD, t. c., London Clay, Sheppey.

Notelops, g. n., for *Phacolepis brama*, Ag. (foss.), A. S. WOODWARD, t. c. p. 27.

Thrissopater magnus, p. 33, pl. v, and *megalops*, p. 35, pl. vii, fig. 4, spp. nn. (foss.), A. S. WOODWARD, t. c., Turonian, Kent and Sussex.

- ✓ *Histiiothrissa*, g. n., for *Sardinius macrodactylus*, v. d. Marck (foss.), A. S. WOODWARD, t. c. p. 131.

Anognmius polymicrodus, Stew., and *evolutus*, Cope (foss.), described and figured by STEWART, Univ. Survey Kansas vi, Paleont. ii, pp. 342 & 347, pl. lxiv-lxvii.

Pachyrhizodus leptognathus, Stewart, *velox*, Stewart, *leptopsis*, Cope, *caninus*, Cope, *latimentum*, Cope, and *minimus*, Stewart (foss.). Various remains described and figured by STEWART, t. c. pp. 351-361, pls. lxxviii-lxx. *P. dibleyi*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 38, fig., Turonian, Kent.

- ✓ *Esocelops*, g. n., for *E. cavifrons*, sp. n. (foss.), A. S. WOODWARD, t. c. p. 46, pl. iii, figg. 1 & 2, London Clay, Sheppey.

SAURODONTIDÆ.

Remarks by A. S. STEWART, Univ. Survey Kansas vi, Paleont. ii, p. 262, with descriptions and figures of the following fossil remains from the Cretaceous of Kansas:—

Xiphactinus uddax, Cope, p. 267, pls. xxxiii-xlvi, *lowii*, Stewart, p. 293, pl. lxviii, fig. 2, and *brachygnathus*, Stewart, p. 293, pl. xlv, figg. 3 & 4.

- Ichthyodectes anaides*, Cope, p. 296, pl. xlix, figg. 1-3, *hamatus*, Cope, p. 298, pls. xlvii, fig. 2, and 1, figg. 1-7, *cruentus*, Hay, p. 300, pl. 1, figg. 8-10, *acanthicus*, Cope, p. 301, pl. li, figg. 1-11, and *ctenodon*, Cope, p. 303, pls. xlix, figg. 6-7, and li, figg. 12 & 13.
- Gillicus arcuatus*, Cope, p. 306, pls. lii-liv.
- Saurodon phlebotomus*, p. 312, pl. lvii, figg. 4 & 5, *broadheadi*, Stewart, p. 313, *xiphrostris*, Stewart, p. 314, pl. lv, and *ferox*, Stewart, p. 319, pls. lvi & lvii.
- Saurocephalus dentatus*, Stewart, p. 323, pl. lviii, figg. 3 & 4.
- Ichthyodectes serridens*, p. 101, pl. viii, Albion, Kent, and *tenuidens*, p. 104, pl. ix, fig. 6, Turonian, Kent, spp. nn. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv.

HALOSAURIDÆ.

- Enchelurus syriacus*, p. 165, pl. xii, figg. 1 & 2, Upper Cretaceous, Lebanon, and *anglicus*, p. 167, pl. xii, fig. 3, Turonian, S.E. England, spp. nn. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv.

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- Lycoptera sinensis*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 3, fig., Lower Jurassic(?), China.

GYMNOTIDÆ.

- Sternopygus virescens*, Val., recorded from Uruguay by C. BERG, Comun. Mus. Buenos Aires i, p. 307.

MURENIDÆ.

- L. FACCIOLOÀ, Atti Soc. Modena (4) ii, pp. 41-85, pls. vi & vii, reviews the history of our knowledge of the development of Apodal Fishes and the structure of the 'Leptocephali.'
- On questions of priority in the discoveries relating to the development of Apodes: FACCIOLOÀ, Boll. Soc. zool. Ital. (2) i, p. 247.
- The Apodes of Japan reviewed by JORDAN & SNYDER, P. U. S. Mus. xxiii, pp. 837-890, figg.
- Synaphobranchus iraconis* and *jenkinsi*, spp. nn., JORDAN & SNYDER, t. c. pp. 844 & 845, figg., Japan.
- Urenchelys avus*, sp. n. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 337, pl. xviii, figg. 1 & 2, Upper Cretaceous, Lebanon.
- Leptocephalus brevisrostris*, Kaup. Note by LO BIANCO, Mt. Stat. Neapel xv, p. 427.
- Conger*. *Leptocephalus crebrennus*, p. 849, fig., *kiusiuanus*, p. 851, *riukiuanus*, p. 852, fig., *nystromi*, p. 853, fig., and *retrotinctus*, p. 853, fig., spp. nn., JORDAN & SNYDER, t. c., Japan.
- Chlopsis ferox*, sp. n., JORDAN & SNYDER, t. c. p. 860, fig., Japan.
- Muramichthys ovstoni*, *hattæ*, and *aoki*, spp. nn., JORDAN & SNYDER, t. c. pp. 862 & 863, figg., Japan.
- Sphagebranchus moseri*, sp. n., JORDAN & SNYDER, t. c. p. 864, fig., Japan.
- ✓ *Chlevastes*, g. n., for *Ophichthys colubrinus*, Bodd., JORDAN & SNYDER, t. c. p. 867.
- Pisodonophis zophistius*, sp. n., JORDAN & SNYDER, t. c. p. 868, fig., Japan.
- ✓ *Xyrius*, g. n., near *Ophichthys*, for *X. revulsus*, sp. n., JORDAN & SNYDER, t. c. p. 868, fig., Japan.

- Microdonophis erabo*, sp. n., JORDAN & SNYDER, t. c. p. 870, fig., Japan.
Ophichthys asakuræ and *tsuchidæ*, spp. nn., JORDAN & SNYDER, t. c. pp. 872 & 873, figg., Japan.
Bascanichthys hemizona, Ogilby = *Ophichthys pinguis*, Gthr., WAITE, Rec. Austral. Mus. iv, p. 53.
 ✓ *Rhynchorkhinus*, g. n., near *Eomyrus*, Storms, for *R. branchialis* and *R. major*, spp. nn. (foss.), A. S. WOODWARD, Cat. Foss. Fish. iv, p. 342, pl. xviii, fig. 4, Lower Eocene, London Basin.
 ✓ *Amasia*, g. n., near *Gymnothorax*, for *Æ. lichenosa*, sp. n., JORDAN & SNYDER, t. c. p. 883, fig., Japan.
Echidna kishinouyei, sp. n., JORDAN & SNYDER, t. c. p. 885, fig., Japan.
Uropterygius okinawæ, sp. n., JORDAN & SNYDER, t. c. p. 886, fig., Japan.

LOPHOBRANCHII.

- D. S. JORDAN & J. O. SNYDER, P. U. S. Mus. xxiv, pp. 1-20, pls. i-xii, review the Lophobranchiate and Hypostomide Fishes of Japan.

SYNGNATHIDÆ.

- Syngnathus gracilis*, sp. n., STEINDACHNER, Abh. Senckenb. Ges. xxv, p. 458, pl. xviii, fig. 1, Ternate.
Doryichthys elegans, sp. n., STEINDACHNER, t. c. p. 459, pl. xviii, fig. 2, Ternate.
Corythoichthys isigakius, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiv, p. 7, pl. v, Japan.
 ✓ *Fozia*, g. n., near *Trachyrhamphus*, for *Y. wakanouræ*, sp. n., JORDAN & SNYDER, t. c. p. 8, pl. vi, Japan.
Urocampus rikuzenius, sp. n., JORDAN & SNYDER, t. c. p. 10, pl. vii, Japan.
Hippocampus kelloggi, p. 14, pl. viii, *aterrimus*, p. 14, pl. ix, and *sindonis*, p. 17, pl. xi, spp. nn., JORDAN & SNYDER, t. c., Japan.

PEGASIDÆ.

- ✓ *Zalises*, g. n., intermediate between *Pegasus* and *Parapegasus*, for *Z. umitengu*, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiv, p. 2, pls. i & ii, Japan.

PLECTOGNATHI.

- D. S. JORDAN & J. O. SNYDER, P. U. S. Mus. xxiv, pp. 229-264, figg., review the Gymnodonts of Japan.
 E. H. GREEN, Bull. U. S. Fish Comm. xix, pp. 321-324, reports on the chemical composition of the sub-dermal connective tissue of *Orthogoriscus mola*.
Monacanthus howensis, Ogilby, noticed and figured by WAITE, Rec. Austral. Mus. iv, p. 47, pl. viii; *M. mosaicus*, Rams. & Ogilby. Note by WAITE, t. c. p. 53.
Balistes caprisacus, L. Specimen taken off Brighton noticed and figured by Toms, Zoologist (4) v, p. 225, fig.
Ostracion camurum, sp. n., JENKINS, Bull. U. S. Fish Comm. xix, p. 396, fig., Hawaiian Islands.
Ovoides latifrons, sp. n., JENKINS, t. c. p. 398, fig., Hawaiian Islands.
Tropidichthys jactator, sp. n., JENKINS, t. c. p. 399, fig., Hawaiian Islands.
 ✓ *Eumycterias*, g. n., allied to *Tropidichthys*, for *E. biteniatus*, JENKINS, t. c. p. 399, fig., Hawaiian Islands.

Spheroides abbotti, p. 240, fig., *exascurus*, p. 241, fig., *borealis*, p. 245, fig., and *niphobles*, p. 246, spp. nn., JORDAN & SNYDER, P. U. S. Mus. xxiv, Japan.

GANOIDEI.

J. B. JOHNSTON, Zool. Jahrb. Anat. xv, pp. 59-260, figg., pls. ii-xiii, studies the brain of *Acipenser rubicundus*.

Lepidosteus bohemicus, sp. n. (foss.), LAUBE, Syn. Wirbelthierf. Böhm. Braunkohlenf. p. 9, fig., Oligocene, Bohemia.

Amia macrocephala, Reuss (foss.). Specimens described and figured by LAUBE, t. c. p. 10, pl. i, figg. 1-3, & viii, figg. 1 & 2.

Protosphyraenus bentoniana, Stewart, *recurvirostris*, Stewart, *gigas*, Stewart, and *penetrans*, Cope (foss.). Remains described by STEWART, Univ. Survey Kansas vi, Paleont. ii, pp. 365-371, pl. lxiii.

Ptychodus mortoni, Mant., *polygurus*, Buckl., *martini*, Willist., *anonymus*, Willist., *occidentalis*, Leidy, *janewayi*, Cope, and *whippleyi*, Marcou (foss.). Notes and figures of teeth from the Cretaceous of Kansas: WILLISTON, Univ. Surv. Kansas vi, Paleont. ii, pp. 237-241, pls. xxv-xxx.

Caelodus brownii, Cope (foss.). Fragment of lower jaw described and figured by WILLISTON, t. c. p. 254, pl. xxiv, fig. 12; *C. stantoni*, sp. n. (foss.), id. ibid. p. 255, pl. xxiv, fig. 12 & xxvi, fig. 6, Cretaceous of Kansas.

Scapanorhynchus raphiodon, Ag. (foss.). Teeth figured by WILLISTON, t. c. pls. xxvi & xxxii.

Corax falcatus, Ag. (foss.). Teeth figured by WILLISTON, t. c. pls. xxxi & xxxii; *C. curvatus*, sp. n. (foss.), id. ibid. p. 253, pl. xxx, Cretaceous of Kansas.

Leptostyrax bicuspidatus, Willist. (foss.). Teeth described and figured by WILLISTON, t. c. p. 253, pls. xxiv & xxvi.

Semionotus, Ag. (foss.). Remarks on the generic and specific characters, systematic position, and description and figures of *S. capensis*, A. S. Woodw., *bergerti*, Ag., and *gallineki*, Michael. SCHELLWIEN, Schr. Ges. Konigsb. xlii, p. 1, pls. i-iii.

Acipenser kikuchii, sp. n., JORDAN & SNYDER, J. Coll. Japan xv, p. 302, pl. xv, figg. 1 & 2, Japan.

Elonichthys, Gieb. (foss.). TRAQUAIR concludes his account of the British forms of this genus. Palæontogr. Soc. Memoir on Ganoid Fishes Brit. Carb. Form., pp. 61-87, pls. viii-xviii.

CROSSOPTERYGII.

Divided into two suborders: CLADISTIA (*Polypteridae*) and OSTEOLEPIDA (*Osteolepidae*, *Rhizodontidae*, *Holoptychidae*, *Celacanthidae*) by BOULENGER, Poiss. Bass. Congo, p. 2.

J. S. BUDGETT, Tr. Zool. Soc. London xv, pp. 323-338, pls. 1-1ii, deals with various points in the anatomy of *Polypterus lapradii* and *P. senegalus*.

E. S. GOODRICH, Quart. J. Micr. Sci. (2) xlv, pp. 311-324, figg., pl. xvi, writes on the pelvic girdle and fin of *Eusthenopteron foordii*, Whiteaves.

Polypterus, Geoffr. Notes on the breeding habits of *P. lapradii*, Sldr., and *P. senegalus*, Cuv., BUDGETT, Tr. Zool. Soc. London xvi, p. 116, with a description and figure of a larva, referred to *P. lapradii*, p. 118, pl. xi, figg. 1 & 2.

Calamichthys calabaricus, J. A. Smith. On a specimen with a suboperculum: BOULENGER, P. Z. S. 1901, p. 4.

- Celacanthus tingleyensis*, Davis (foss.). On the pectoral fin: WELLBURN, Geol. Mag. (2) Dec. iv, viii, p. 71.
- ✓ *Celacanthopsis*, g. n., apparently related to *Celacanthus*, for *C. curta*, sp. n., TRAQUAIR, Geol. Mag. (2) Dec. iv, viii, p. 113, Lower Carboniferous, East Fifeshire.

DIPNEUSTI.

- R. SEMON, Zool. Anz. xxiv, pp. 180-188, gives reasons for regarding the Batrachians as more closely related to the Dipneusti than to any other type of Fishes.
- R. SEMON, Zool. Forsch. Austral. i, continues his studies on *Ceratodus forsteri*, dealing with the development of the teeth (pp. 115-135, figg., pls. xviii-xx) and the gastrulation (pp. 301-332, figg., pls. xxx-xxxiv). H. BRAUN, op. cit. pp. 136-300, figg., pls. xxi-xxix, deals with the muscles and nerves of the paired fins.
- R. SEMON, Zool. Anz. xxiv, pp. 131-135, writes on the development of the urogenital system of the Dipneusti, and, Arch. Entwicklmech. xi, pp. 310-320, figg., on the ectodermal median groove in *Ceratodus forsteri*.
- GREGG WILSON, P. Phys. Soc. Edinb. xiv, pp. 319-323, figg., has preliminary notes on the first foundation of the lung and the embryonic excretory organs in *Ceratodus forsteri*.
- G. KERR, Quart. J. Micr. Sci. (2) xlv, pp. 1-40, pls. i-iv, continues his investigations of the development of *Lepidosiren paradoxa*, to which he adds a note upon the corresponding stages in the development of *Protopterus annectens*.
- Protopterus annectens*, Ow. Notes on the breeding habits and development: BUDGETT, Tr. Zool. Soc. London xvi, p. 119, fig., pls. x & xi, fig. 3. Notes on the habits by A. HALKETT, Ottawa Natural. xiv, p. 184; *P. aethiopicus*, Heck. Note by BOULENGER, P. Z. S. 1901, ii, p. 158; *P. dolloi*, Blgr. Note by BOULENGER, P. Z. S. 1900, p. 775.
- Rhynchodus emigratus*, Huene (foss.). Note by F. v. HUENE, Centrbl. Mineral. 1900, p. 178.

CHONDROPTERYGII.

HOLOCEPHALI.

- Divided into three families: *Chimæridæ*, *Callorhynchidæ*, *Rhinochimæridæ*, by GARMAN, P. New England Zool. Club ii, p. 76.
- H. NEUVILLE, Bull. Soc. Philom. (9) iii, pp. 59-66, figg., writes on the intestinal spiral valve in *Chimæra monstrosa*.
- R. H. BURNE, P. Z. S. 1901, i, pp. 184-187, figg., remarks on the innervation of the supraorbital canal in *Chimæra monstrosa*.
- Rhinochimæra*, g. n., for *Harriotta pacifica*, Mitsukuri, GARMAN, t. c. p. 75.

PLAGIOSTOMI.

- A. DOHRN, Mt. Stat. Neapel xv, pp. 1-279, pls. i-xv, continues his studies of Selachian morphology with special reference to the origin of Vertebrates.
- O. HUBER, Zeitschr. wiss. Zool. lxx, pp. 592-674, and Anat. Anz. xix, pp. 299-307, figg., pls. xxvii & xxviii, investigates the structure of the genital claspers of Selachians.

- H. KOPPEN, Zool. Jahrb. Anat. xiv, pp. 477-522, fig., pls. xxxviii-xl, writes on the structure of the spines in *Spinax niger*.
- R. C. PUNNETT, P. R. Soc. London lxviii, pp. 140-142, and lxix, pp. 2-26, figg., continues his observations on the composition and variations of the pelvic plexus in *Acanthias vulgaris*.
- L. EDINGER, Arch. mikr. Anat. lviii, pp. 661-678, pls. xxxiii & xxxiv, describes the cerebellum of *Scyllium canicula*.
- E. P. ALLIS, Quart. J. Micr. Sci. (2) xlv, pp. 87-236, pls. x-xii, writes on the lateral sensory canals, the eye-muscles, and the peripheral distribution of certain of the cranial nerves of *Mustelus laevis*.
- A. FRORIEP, Arch. Anat. 1901, pp. 371-393, figg., pl. xvii, investigates the development of the spinal and occipital ganglia in Selachians.
- S. HATAI, J. Cincinnati Soc. xx, pp. 1-12, pl. i, records his observations on the efferent Neurones in the electric lobes of *Torpedo occidentalis*.
- B. DEAN, Annot. zool. Japon. iv, pp. 35-41, pl. i, writes on the cleavage of the egg of *Cestracion japonicus*.
- B. HALLER, Morphol. Jahrb. xxix, pp. 283-316, figg., pls. xv & xvi, writes on the primitive kidney of *Acanthias vulgaris*.
- E. WEINLAND, Zeitschr. Biol. (2) xxiii, pp. 35-68, 275-294, pl. i, writes on the digestion of Selachians.
- Galeus antarcticus*, Gthr. Embryo described and figured by WAITE, Rec. Austral. Mus. iv, p. 175, fig.
- Sphyrna prisca*, Ag. (foss.). Tooth figured by DE ALESSANDRI, Atti Mus. Milano xxxix, pl. —, fig. 4.
- Carcharodon auriculatus*, Blainv. (foss.). Description and figures of remains from Brussels, by R. STORMS, Mém. Soc. Belge Geol. xv, p. 259, pl. vii.
- Isurus mantelli*, Geinitz (foss.). Teeth figured by WILLISTON, Univ. Surv. Kansas vi, Paleont. ii, pls. xxxi & xxxii.
- Lamna appendiculata*, Roem. and *sulcata*, Geinitz (foss.). Teeth figured by WILLISTON, l. c. pls. xxiv, xxvi & xxxi.
- Oxyrhina desorii* and *crassa*, Ag. (foss.). Teeth figured by DE ALESSANDRI, Atti Mus. Milano xxxix, pl. —, figg. 2 & 3.
- Odonaspis cuspidata*, Ag. (foss.). Tooth figured by DE ALESSANDRI, t. c. pl. —, fig. 1.
- Rhinodon pentalineatus*, sp. n., KISHINOUE, Zool. Anz. xxiv, p. 694, figg., Japan.
- Hemiscylliidae*. A new family, to embrace *Hemiscyllium* and *Chiloscyllium*, proposed by WAITE, Rec. Austral. Mus. iv, p. 32.
- Hemiscyllium modestum*, Gthr., described and figured by WAITE, t. c. pp. 28 & 35, pl. iv, fig. 1.
- Scylliorhinus rugosus*, Willist., *planidens*, Willist., and *gracilis*, Willist. (foss.). Notes and figures of teeth from the Cretaceous of Kansas. WILLISTON, Univ. Surv. Kansas vi, Paleont. ii, pp. 244 & 245, pl. xxiv.
- Poephodus minuta*, sp. n. (foss.), WELLBURN, Geol. Mag. (2) Dec. iv, viii, p. 218, Devonian, Lancashire.
- Hesanchus griseus*, Gm. On a specimen from the Bay of Biscay: VAILLANT, Bull. Mus. Paris 1901, p. 202.
- Heptanchus deani*, sp. n., JORDAN & STARKS, P. Calif. Ac. (3) ii, p. 384, fig., Japan.
- Petalodus ornatus*, sp. n. (foss.), WELLBURN, P. Yorksh. Geol. Soc. (2) xiv, p. 163, Coal Measures, Yorkshire.
- Janassa sulcatus*, sp. n. (foss.), WELLBURN, t. c. p. 163, Coal Measures, Yorkshire.
- Squalus (Acanthias) megalops*, Mackay. On a foetal specimen: WAITE, Rec. Austral. Mus. iv, p. 33, pl. iv, fig. 2.
- Scymnus trituratorus*, Winkl. (foss.). Tooth figured by DE ALESSANDRI, Atti Mus. Milano xxxix, pl. —, fig. 5.

ACANTHODII.

Acanthodes striatus, sp. n. (foss.), WELLBURN, Geol. Mag. (2) Dec. iv, viii, p. 219, Devonian, Lancashire.

ICHTHYOTOMI.

Cladodus unicuspidatus, sp. n. (foss.), TRAQUAIR, Geol. Mag. (2) Dec. iv, viii, p. 112, Lower Carboniferous, East Fifeshire.

INCERTÆ SEDIS (ICHTHYODORULITES).

- ✓ J. V. ROHON, SB. Bohmisch. Ges. 1901, No. xvi, 31 pp., 2 pls., has a contribution to the anatomy and histology of the *Psammosteidae*.
Ganosteus, g. n., allied to *Psammosteus*, for *G. tuberculatus* and *G. stellatus*, spp. nn., ROHON, t. c. p. 12, Devonian of Livonia.
Acanthaspis tuberculatus, sp. n., EASTMAN, Centrbl. Mineral. 1900, p. 178, Devonian of Eifel.
Platacodon nanus, Marsh. Note by HATCHER, Ann. Carnegie Mus. i, p. 128.
Euctenodopsis, g. n., for a species apparently allied to *Euctenius*, Traq. WELLBURN, Geol. Mag. (2) Dec. iv, viii, p. 220; *E. tenuis*, sp. n., id. ibid., Devonian, Lancashire.
Helicoprion, Karpinsky. On a newly-discovered fragment: KOKEN, Centrbl. Mineral. 1901, p. 225, fig. Remarks on the morphological nature of these ichthyodorulites: KLAATSCH, t. c. pp. 429-436, figg.
Eucentrurus paradoxus, g. and sp. nn., for a strange organism, possibly Selachian: TRAQUAIR, Geol. Mag. (2) Dec. iv, viii, p. 114, Lower Carboniferous, Eastern Fifeshire.

CYCLOSTOMI.

- L. PLATE, Tagebl. v, Int. Zool. Congr. No. 8, pp. 7 & 8, remarks on the Cyclostomes of the Southern Hemisphere.
 On the Cyclostomes of Japan: JORDAN & SNYDER, P. U. S. Mus. xxiii, pp. 729-734.
 J. SCHAFER, Anat. Anz. xix, pp. 20-29, pl. 1, describes the minute structure and development of the cartilage of the caudal fin in *Petromyzon* and *Ammocetes*.
 C. M. JACKSON, J. Cincinnati Soc. xx, pp. 13-48, figg., 3 pls., investigates the vascular system of *Bdellostoma dombeyi*.
 W. H. GASKELL, J. Anat. Physiol. norm. path. (2) xv, pp. 224-267, figg., continuing his investigations on the origin of Vertebrates, deals with the optic nerves of *Ammocetes*.
 J. F. HOLM, Morphol. Jahrb. xxix, pp. 365-401, pls. xix-xxii, investigates the finer anatomy of the nervous system of *Myxine glutinosa*.
 W. LUBOSCH, Morphol. Jahrb. xxix, pp. 402-414, figg., pl. xiii, describes the first appearance of the olfactory organs in *Ammocetes* and its connections with the neuropore.
 K. HERFORT, Arch. mikr. Anat. lvii, pp. 54-95, pls. iv-vi, writes on the maturation and fecundation of the ovum of *Petromyzon fluviatilis*.
 OLGA ROSMINI, Boll. Mus. Torino xvi, No. 390, studies the variations of form in *Petromyzon planeri* and its larval form, *Ammocetes branchialis*.

- Petromyzon japonicus*, Mart. Note by S. HATTA, Annot. zool. Japon. iv, p. 22.
Lampetra japonica, sp. n., HATTA, t. c. p. 23, Japan.
Bdellostoma, J. Müll. This name is to yield to the prior *Heptatrema*, Dum. GILL, P. U. S. Mus. xxiii, p. 735; *B. burgeri*, Gir., figured by JORDAN & SNYDER, P. U. S. Mus. xxiii, pl. xxx.
Geotria macrostoma, var. n. *gallegensis*, SMITT, Bih. Svensk. Ak. Handl. xxvi, iv, No. 13, p. 23, pl. iv, R. Gallegos, Patagonia.
Myxine garmani, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 731, Japan.

LEPTOCARDII.

- H. JOSEPH, Arb. Inst. Wien xiii, pp. 125-154, pls. vi & vii, contributes to the anatomy and histology of *Branchiostoma lanceolatum*.
Branchiostoma nakagawae, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiii, p. 726, Japan.
Dolichorhynchus, g. n., or subgenus of *Branchiostoma*, for *D. indicus*, sp. n., WILLEY, Quart. J. Micr. Sci. (2) xlv, p. 269, figg., Coast of Orissa.
Heteropleuron hectori, sp. n., BENHAM, Quart. J. Micr. Sci. (2) xlv, p. 273, pl. xvii, New Zealand.

VI. TUNICATA.

BY

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INTRODUCTION.

THE most important contributions during the year appear to be the following: SEELIGER (22) further addition to Bronn's Klassen etc.: SCHULTZE (21) on the circulation and pulse in Salpæ: RITTER (19), of considerable interest with regard to the Ascidians of Alaska: DAHLGRÜN (5 & 6) information on the structure of the excretory organs. SELYS-LONGCHAMPS (23 & 24) has contributed some excellent work on the development of the heart, pericardium and epicardium in *Ciona*, of the prostigmata in *Ciona* and *Ascidella*, and of the branchiæ in *Corella*.

I. TITLES.

1. ALLEN, E. J. & TODD, R. A. The fauna of the Exe Estuary. J. Mar. Biol. Ass. vi. [Tunicata, p. 330.]
2. CASH, W. In Memoriam: W. P. Sladen. P. Yorks. geol. Soc. xiv, ii, pp. 261-274. [Tunicata, p. 262.]
3. CORI, C. J. & STEUER, A. Beobachtungen über das Plankton des Triester Golfes in den Jahren 1899 und 1900. Zool. Anz. xxiv, pp. 111-116. [Tunicata, pp. 113-115.]
4. CRAMPTON, H. E. Studies upon the early history of the Ascidian egg. Part i. The ovarian history of the egg of *Molgula manhattensis*. J. Morphol. xv, Suppl. pp. 29-54, pl. iii.
Omitted 1899. Abstract, p. 103, Année Biol. v.
5. DAHLGRÜN, W. Untersuchungen über den Bau der Excretionsorgane der Tunicaten. Arch. mikr. Anat. lviii, pp. 608-640, pls. xxx & xxxi.
6. —. Untersuchungen über den Bau der Excretionsorgane der Tunicaten. Zool. Anz. xxiv, pp. 149-151.
7. DELLA VALLE, A. Di alcune particolarità osservate nelle Ascidie del Golfo di Napoli. Monit. Zool. ital. xii, pp. 186-188. i. Diversa maniera di origine delle nuove colonie di *Diplosoma listeri*. ii. Migrazione della *Ciona intestinalis*.
8. ELLIOT, G. F. S., LAURIE, M. & MURDOCH, J. B. Fauna, flora and geology of the Clyde Area. Handb. Nat. Hist. Glasgow 1901. [Tunicata, list of spp. by J. RANKIN, pp. 181-183.]
9. GADEAU DE KERVILLE, H. Recherches sur les faunes marine et maritime de la Normandie, 3^e voyage. Bull. Soc. Rouen 1900, 2, pp. 145-224. [Tunicata, pp. 219 & 220, 5 spp. not described but depth of occurrence and locality given.]
10. HARTMEYER, R. Zur Kenntniss des Genus *Rhodossoma* Ehrbg. Arch. Naturg. lxvii (Festschrift), pp. 151-168, pl. iv.
11. —. Holosome Ascidien (*Ascidacea holosomata*). Meeresfauna Bergen i, pp. 17-63. [40 spp., 4 n. spp.]
12. HERDMAN, W. A. Dredging expeditions. Tr. Liverp. biol. Soc. xv. Tunicates, pp. 25, 34. [Unimportant.]
13. JULIN, C. Nouvelles études sur les phénomènes intimes de la maturation de l'œuf et de la fécondation chez les Tuniciers. C.R. Ass. Franc. xxviii, p. 262, 1900. [Nota.]
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VII. MOLLUSCA.

BY

E. R. SYKES, B.A.

Assisted by E. A. SMITH and S. PACE.

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INTRODUCTION.

ALTHOUGH the number of papers dealing with the Mollusca has, during the year 1901, shewn a slight increase, the flood of new generic and sectional names has—temporarily only though it may be—slightly abated.

In the first place we have to note the steady progress of TRYON'S (607) 'Manual,' PILSBRY having continued his study of the *Bulimulida*. Of the 'Conchylien-Cabinet' of MARTINI & CHEMNITZ (348), ten parts have appeared, dealing with the *Zonitida*, *Buliminida*, *Auriculacea*, *Pyramidellida*, *Pleurotomaria*, and *Vermetida*. After a year's interval we have to chronicle a further instalment by SIMROTH of the Molluscan portion of

BRONN's (74) 'Thier-Reich'; the work is brought well up to date, but a slight acceleration of the rate of publication would greatly add to its value. COSSMANN (123) has issued a further part of his interesting 'Essais de Paléoconchologie comparée,' the present instalment containing several families of the Prosobranchiata. The supposed 'Antarctic Continent' has been discussed by ANCEY (10), MOELLENDORFF (375), and SMROTH (531), with a view to the explanation of the distribution of some land molluscs. BERGH (41) and MOELLENDORFF (377) have continued their work in Semper's 'Reisen im Archipel der Philippinen' dealing, respectively, with the *Bullacea* and the land shells. KOBELT (303) has continued his account of the European marine fauna and, equally, in ROSSMAESSLER (484) has issued further details relating to the land molluscs. We have to congratulate MARTENS (342) on the successful completion of his work on the Mollusca in the 'Biologia Centrali-Americana.' HIDALGO (248) has published some further portions of his 'Obras,' relating almost entirely to the genus *Cochlostyla*.

An interesting catalogue of the 'Binney and Bland collections' has been issued by GRATACAP (210). In the work by the brothers SARASIN (495), will be found much valuable information relating to the land shells of Celebes, though the title would hardly convey the fact to the student. An elaborate synopsis of the Palearctic *Clausiliæ* has been written by WESTERLUND (641).

Japan has, as in past years, attracted much attention, owing to the diligent collecting of Mr. Hirase, and numerous papers have been written by PILSBRY (430, etc.); reference may also be made to those of GUDE (219, etc.) and MOELLENDORFF (371). The latter author has also dealt (372-4) with collections from Annam and Tonkin, and has issued (376) a further portion of his review of the fauna of West China and Central Asia. Several additions to the described fauna of the Congo Free State have been made by DUPUIS & PUTZEYS (170 & 171). Those interested in the West Indian fauna should consult the works of DALL & SIMPSON (148) and BORDAZ (63), dealing with the islands of Porto Rico and Martinique respectively; while a good example of a local fauna may be found in GALLENSTEIN (196), relating to Carinthia.

Turning to the marine Mollusca, we owe to HEDLEY (238) a valuable revision of the 'types of the marine shells of the Chevert Expedition,' whilst his other papers (235-7) on the Australasian fauna will repay attention. TATE & MAY (589) have issued a very useful catalogue of the shells of Tasmania. MELVILL & STANDEN (362) have made a considerable addition to our knowledge of the Gastropods of the Persian Gulf and neighbouring regions; whilst a collection of Pelecypods from the Red Sea has been dealt with by STURANY (576); and FISCHER (181) has listed some molluscs from Djibouti. LOCARD & CAZIOT (323) have completed their fauna of Corsica, and VAYSSIÈRE (615) has dealt with a collection of Nudibranchs from near Marseilles, giving also much valuable anatomical information. FRIELE & GRIEG (190) have added to our knowledge of the Mollusca collected by the 'Norske Nordhavs-Expedition'; while DALL & SIMPSON (148) have given an exhaustive review of the fauna of Porto Rico. In conclusion we may refer to JOUBIN's (278) valuable paper on the Cephalopods collected in the North Atlantic.

A useful classificatory list of the British Marine Mollusca has been issued by CHASTER, etc. (91); DALL (146) has published a synopsis of the *Lucinacea*; JAMESON (268) has reviewed the pearl oysters; and VAYSSIÈRE (617) has issued the second part of his study of the *Pleurobranchidæ*, specially from an anatomical standpoint. VEST (622) has continued his studies on the bivalve hinge.

Pseudovermis has attracted the attention of KOWALEVSKY (306), who gives details to shew that the form is really Molluscan. The valuable

paper by PEISENER (419) on 'Archaic Molluscs' should be studied, and a good summary of our knowledge of the Opisthobranchs will be found in GUTIART (226), whilst BIEDERMANN (43) has dealt with the formation of the shell. Of papers dealing with the Cephalopoda we may note those of RABL (464) on the chromatophores, ROTTMANN (485) on the radula, and HESCHELER (245) on *Sepia*. *Pleurotomaria* has been the subject of a careful study by WOODWARD, M. F. (667), it being, unfortunately, the last time his name will appear as an author in our record; while notes have been written on the same genus by BOUVIER & FISCHER (69 & 70) and HESCHELER (246). We have already referred to the paper by VAYSSIÈRE on Nudibranchs, and have also to chronicle one by KREMBZOW (309) on the *Eolididae*. CONKLIN (119 & 120) has continued his studies on the embryology of *Crepidula*. To BERGH (40) we owe a most valuable comparative study of several species of *Harpa*. The nervous system of *Capulus* has attracted LACAZE-DUTHIERS (311), while JORDAN (277) has dealt with the locomotion of *Aplysia*. Much work has been done on the gastric gland, and we may mention the paper by MACMUNN (330). WIEGMANN (653) has written a most useful account of the *Buliminidae* of Central Asia. COLLINGE (108, etc.) has issued several papers on slugs, and other papers on Gastropoda by BEUTLER (42), GODWIN-AUSTEN (200-2), and TOBLER (598) may be named.

Turning to the Pelecypods, we may note the paper by AHTING (2), also a study of *Solen* by BLOOMER (54), a paper on the life-history of *Nucula* by DREW (165), a study of the egg in *Unio* by LILLIE (319), and MEISENHEIMER's (354, 356) work on the development of *Dreissensia*. The most important work on the Polyplacophora is that of PLATE (453).

As an example of the careless way in which authors propose new names for forms which 'are still undetermined,' we may cite the following from the report of a meeting of the Geological Society of Glasgow: "Mr. John Smith exhibited specimens of a curious set of small bodies found..... These bodies are still undetermined, but belonged, he believed, to one of the Carboniferous Nudibranchs, and for which he therefore proposed the provisional name of *Archæodoris carbonarius*." Later on, perhaps, we may be favoured with a diagnosis, and a list of these 'Carboniferous Nudibranchs.'

Turning now to the 'Record' itself, we have first to chronicle the fact that, owing to ill-health, Mr. G. C. Crick has been unable to assist this year, and Mr. S. Pace has taken over a share of the work. One or two alterations made in the present year may be briefly referred to. A paragraph has been inserted, at the close of the 'Titles,' giving details with regard to Biographies, Obituary Notices, etc. Further, a fresh classification of the Anatomical and Biological portion of the work has been made which, it is hoped, will facilitate reference by students. Continuing the practice, instituted last year, of breaking up the lengthy paragraphs included under the heading 'Geological,' a slight step further has been made. Also, as it was found that formations called by one author 'Miocene,' were called 'Eocene' by another, it has been felt that the most convenient course would be to arrange all the Tertiary entries geographically, so as to avoid the risk of fossils from one locality and the same horizon being entered in different places.

Students are warned that, owing to difficulty of access, a few publications containing papers on Mollusca, e.g. Anz. Ak. Wiss. for 1900 and 1901 and Ann. Hofmus. Wien xvi, are not fully included in the present volume.

In conclusion, we would protest against the eccentricities of pagination which are indulged in by certain serial publications and which render accurate reference very troublesome. Thus, the 'Zeitschr. Deutsch. geol. Ges.' now consists of 'Aufsätze,' 'Briefliche Mittheilungen,' and 'Protokolle,' all separately paged in arabic notation. Again, the 'Jahrb. Preuss.

geol. Landesanst.' is made up of 'Mittheilungen,' with two paginations, and of 'Abhandlungen,' also separately paged; while in the last volume chaos is approached by the subdivision of the 'Abhandlungen' into two further sections, each separately paged, and briefly entitled 'Abhandlungen von Mitarbeitern der Königl. geologischen Landesanstalt' and 'Abhandlungen von ausserhalb der Mitglieder der Königl. geologischen Landesanstalt,' respectively.

I. TITLES.*

1. ADAMS, L. E. & WOODWARD, B. B. Land and freshwater Mollusca of Hampshire. Sci. Gossip vii, pp. 301-303, 338, 362.
2. AHTING, K. Untersuchungen über die Entwicklung des Bojanus'schen Organs und des Herzens der Lamellibranchier. Jena. Zeitschr. xxxvi, pp. 181-206, pls. ix-xi.
3. ALDRICH, T. H. A Texas oil well fossil [*Nassa beaumontensis*]. Nautilus xv, p. 74, fig.
4. ALESSANDRI, G. D'. Nuovi fossili del Senoniano Lombardo. Rend. Ist. Lombardo xxxiv, pp. 183-202.
5. —. Appunti di geologia e di paleontologia sui dintorni di Acqui. Atti Soc. Ital. xxxix, pp. 173-348, pl. vi.
6. AMI, H. M. Brief Biographical Sketch of Elkanah Billings. Amer. Geol. xxvii, pp. 265-281, pl. xxv, List of Papers.
7. —. Bibliography of Dr. George M. Dawson. Op. cit. xxviii, pp. 76-86.
8. AMMON, L. VON. Das Isarprofil durch die Mollasseschichten nördlich von Tölz. Palaeontologischer Theil. Geognost. Jahresh. x, pp. 7-23, 6 figg.
9. ANCEY, C. F. On the genus *Ashmunella* Pils. & Ckll., with anatomical notes by R. MURDOCH. J. Malac. viii, pp. 73-85, pl. vii.
10. —. Considérations sur les faunes malacologiques des parties australes du globe. J. Conchyl. xlix, pp. 12-33.
11. —. Études sur la faune malacologique des îles Sandwich. 1. Discussion sur l'habitat du *Papuina barnaclei* E. A. Smith. 2. Sur la valeur du genre *Philonesia*. 3. Sur le groupe des *Baldwinia*. 4. Sur quelques *Auriculella*. T. c. pp. 132-138.
12. —. Notes critiques et synonymiques sur quelques mollusques. I. *Buliminus reticulatus* Reeve. II. *Buliminus moreletianus* Anc. III. *Limicolaria oviformis* Anc. IV. *Pupa debilis* Mousson. V. *Pupa ponsonbyana* Morelet. VI. *Eulota (Acusta) despecta* Gray. VII. *Eulota connivens* Pfr. VIII. *Helicella (Turricula) melolontha* Shuttl. IX. *Helix (Hemicycla) myristica* Shuttl. X. *Armandiella* nom. nov. XI. *Happia sandwicensis* Pfr. XII. *Cyclophorus sericatus* Anc. XIII. *Aferulus* v. Mart. XIV. *Endodonta stroudensis* Cox. XV. *Planispira cyrtopleura* Pfr. XVI. *Diadema angulosa* Anc. XVII. *Helicina rostrata* Morelet. T. c. pp. 138-148.

* An asterisk prefixed to a title indicates that the Recorder has not seen the paper in question.

13. [ANCEY, C. F.] Notes critiques et synonymiques sur quelques Mollusques. xviii. *Ennea obesa* Gibbons. xix. *Ennea* (sect. *Excisa* d'Ailly). xx. *Ennea inconspicua* Morelet. xxi. *Ennea bourguignatiana* Ancey. xxii. *Bulimulus lacticolor* Sowerby. xxiii. *Bulimulus connivens* Pfeiffer. xxiv. *Bulimulus maculatus* Lea. xxv. *Neritina castanea* Rousseau. xxvi. *Neritina rivula* Rousseau. xxvii. *Bathyparis layardi* Ad. et Ang. xxviii. *Lechaptosisia* Ancey. xxix. *Tomichia ventricosa* Sowerby. xxx. *Carinifex ponsonbyi* Smith. T. c. pp. 219-225.
14. —. Notes sur divers mollusques de l'Amérique du sud. Naturaliste 1901, pp. 81 & 82, 92 & 93, 103 & 104.
15. ANDRÉ, E. Note sur une Limnée de la faune profonde du Lac Léman. J. Malac. viii, p. 35.
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16. ANON. The Genus *Japonites*.—*Cicatriles* and *Parahoplites*. J. geol. Soc. Tokyo viii, pp. 360-362.
17. —. *Trigonia* [?n. sp.] from Rikuchū. T. c. pp. 488 & 489, fig. In Japanese.
18. —. Japanese Fossil *Torigonia* [i.e. *Trigonia*]. T. c. pp. 545-548. In Japanese.
19. *—. Die Wassermollusken der Gegend von Würzburg. Mitth. Bad. Zool. Ver. No. 1, pp. 9-12. [Fide Bibl. Zool. vi, p. 41.]
20. ARIOLA, V. La pseudogamia osmotica nel *Dentalium entalis* L. Mt. Stat. Neapel xv, pp. 408-412.
21. ASHBY, E. & TORR, W. G. Fossil Polyplacophora from Eocene Beds of Muddy Creek, Mornington (Schnapper Point), and Moorabool, Victoria, with definitions of nine new species, and notes on others. Tr. R. Soc. S. Austral. xxv, pp. 136-144, pl. iv.
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22. BAKER, F. C. New varieties of freshwater shells [*Limnæa*]. Nautilus xv, pp. 17 & 18.
23. —. *Limnæa auricularia* in America. T. c. p. 58.
24. —. The Molluscan Fauna of the Genesee River. Amer. Natural. xxxv, pp. 659-664.
25. —. The Digitations of the Mantle in *Physa*. Bull. Chicago Ac. ii, pp. 225-228, 2 pls.
26. —. Description of a new species of *Limnæa* [*L. woodruffi*, Lake Michigan]. T. c. pp. 229 & 230, figg.
27. —. A revision of the Limnæas of Northern Illinois. Tr. Ac. St. Louis xi, pp. 1-24, pl. i.
28. BALLANTYNE, J. A Bute Post-glacial shell-bed. Notes on Excavations at the Rothsay Gasworks in 1896-1897. Tr. geol. Soc. Glasgow xi, pp. 281 & 282.
29. BALTZER, A. Geologie der Umgebung des Iseosees. Pal. Abh. ix, Heft 2, 48 pp., 5 pls., 19 figg., map.
30. BARNES, J. & HOLROYD, W. F. Notes on a Fossil [*Cyrtoceras cornuboris* de Kon.] found in the Shales below Millstone Grit, Pule Hill, Marsden. Tr. Manchester Geol. Soc. xxvii, pp. 156-159, 1 pl.
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Pelecypoda:—Phylogeny; BORISSIAK (65).—Relationships of the 'Pectinate' *Trigonia*; HALL (230).—Phylogeny of the *Limidae*; PHILIPPI (427).—Phylogeny and taxonomy of *Aucella* and related forms; POMPECKJ (458).—Evolution of the *Hippuritidae*; TOUCAS (602).

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7. METHODS OF RESEARCH, BIBLIOGRAPHIES, MUSEUMS, &c.

Collecting, preservation, etc.:—On the measurement of the spiral; CONANT (118).—On the collecting and preservation of Mollusca; GRAVIER (213).—Differentiating calcite and aragonite as occurring in the molluscan shell; MEIGEN, Centrbl. Mineral. 1901, pp. 577 & 578.—On collecting material with a view to study of 'species'; PACE, Nature lxiii, pp. 490 & 491.

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Nomenclature :—On the rules of zoological nomenclature ; BONARELLI (59).—Zoological nomenclature ; HERVERA, Bull. Soc. zool. France xxvi, pp. 155 & 156 : PAVLOW (413) : VEVEY, Bull. Soc. zool. France xxvi, pp. 93-95.

8. ECONOMICS.

Oyster-culture in Cornwall ; ANON., Rep. Cornwall Soc. 1900, pp. 103-107, figg.—On the pearl-producing *Unionida* of France ; BONNEMERE (61).—Pearl oysters and fisheries ; COLLETT (106).—Oyster-reefs of North Carolina ; GRAVE (211).—Oyster-culture in Norway ; HENKING (243).—On the clam fishery (*Mya arenaria*) and clam culture of the United States ; KELLOGG (281).—Manual of oyster and mussel culture ; LARBALETIER (314).—Mussel culture on the Coquet ; MEEK (352 & 353).—Note on pearl-shell fishery off Queensland ; MCINTOSH, Nature lxiv, p. 376.—Spawning of *Mytilus edulis* ; SCOTT (507).—On the culture and fisheries of the pearl oyster, and on the formation of pearls ; SEURAT (509 & 510).—Statistics of oyster, mussel, cockle and wrinkle fisheries of Ireland ; SPOTSWOOD, Rep. Fisheries Ireland 1900, Dept. Agric. Ireland.—Foreign oysters acquiring characters of 'Natives' ; TABOR, Nature lxiv, p. 126 : HEADLEY, t. c. p. 108.—Oyster and mussel culture ; TANNEGUY DE VOGAN (587).

9. STRAY NOTES.

Erosion of shells ; BOYCOTT, Sci. Gossip vii, p. 255.—*Helicella cantiana* as food for thrushes ; BULLEN (78).—*Helix arbustorum* at over 7000 feet ; HORSLEY, J. Conch. x, p. 42.—Remarks on the beauty of the form, colour, etc. displayed by the Mollusca ; MÖBIUS (370).—Introduction of *Physa acuta* ; SCHMIDT (502).—Number of recent known Mollusca ; SYKES (579).—Physiological action of decoction made from mussels ; THIBERT (591).—On Mollusca introduced into California ; VARIGNY (613).—Fresh-water shells as marl-forming agents, with notes on shell-erosion ; WESENBERG-LUND (640).—Molluscs broken on 'thrush-stones' ; WOODRUFFE-PEACOCK, Naturalist 1901, p. 163.

B.—DISTRIBUTION.

GEOGRAPHICAL.

N.B.—The numbers in brackets refer to the "Titles." A reference is thus given to each memoir containing any notice affecting the Molluscan fauna of the several geographical divisions here adopted. Synonymic notes and changes of systematic position are, however, not noticed here. References to minor notes, which are not included in the "List of Titles," but which contain faunistic facts of any value, are given to the work direct.

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On the supposed Antarctic continent as explaining the distribution of land shells; ANCEY (10).—Notes on question of a supposed South-polar continent; MOELLENDORFF (375).—On the supposed Antarctic continent; SIMROTH (531).

Distribution of slugs; SIMROTH (529).

a. PALÆARCTIC ZONE.

1. Septentrional Region.

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Europe:—ROSSMAESSLER's monograph of the land and freshwater fauna continued by KOBEIT (484).—Distribution of *Pupa (Torquilla) similis* Brug; MARGIER (334).

British Isles:—Popular works on shells; GORDON (204), STEP (561), WILLIAMS (659).

England and Wales:—Cornwall: Notes on landshells from Porthleven; HORSLEY (256).—Dorset: Notes on some shells at Stour Provost; SWANTON, *Natural J.* x, p. 32.—Hampshire: Land and freshwater Mollusca; ADAMS & WOODWARD (1).—Shropshire: Molluscs of Church-Stretton; BUDDICOM (75).—Surrey: *Clausilia biplicata* at Haslemore; PANNELL, *Natural J.* x, p. 155: Occurrence of *Arion subfuscus*; PANNELL, t. c. p. 156.—East Sussex: Land and freshwater shells; WHITWELL (650).—Essex: Local extinction and diffusion of Molluscs; FRENCH (189).—Lincolnshire: Varieties of *Helix virgata*; CARTER, *Naturalist* 1901, p. 4: Quantity of *Agriolimax agrestis*; PEACOCK, t. c. p. 4: Notes on slugs; WOODRUFFE-PEACOCK, t. c. p. 157: White varieties of landshells near Louth; CARTER, t. c. pp. 157, 355: Note on landshells; WOODRUFFE-PEACOCK, t. c. pp. 355 & 356: Notes on *Helix cantiana* and others; WOODRUFFE-PEACOCK, t. c. p. 232: Notes on land and freshwater shells; BOOTH, t. c. p. 216: *Pisidium milium*; CARTER, t. c. p. 232.—Warwickshire: Occurrence of *Amalia gagates* at Sutton Coldfield; OVERTON, *J. Malac.* viii, p. 124.—South Staffordshire: Occurrence of *Physa heterostrophæ*; LINTON, t. c. p. 124.—Lancashire: List of land and freshwater shells; LONG (325): Occurrence of reversed Helices; COLLIER (107).—Lancashire and Cheshire: Spreading of *Physa heterostrophæ*; LUCAS, *J. Conch.* x, p. 34.—Cheshire: Occurrence of *Paludetrina jenkinsi*; OLDHAM, t. c. p. 42: *Paludetrina taylori*, n. sp.; SMITH (539).—Derbyshire: Shells above Castleton; BULLEN, *Sci. Gossip* vii, p. 286.—Yorks: Occurrence of *Testacella scutulum* near Leeds; ROEBUCK, *Naturalist* 1901, p. 4: Note on shells near Selby; HOWDEN, *Natural J.* x, p. 99: Reversed *Limnæa peregra* and large *Planorbis nautilus* near Leeds; NELSON, *Naturalist* 1901, pp. 216, 355.

Scotland:—West Lothian: Notes on shells; GODFREY, Ann. Scott. Nat. Hist. 1901, p. 51.—Forth District: *Clausilia laminata* and *Helix virgata*; EVANS, t. c. p. 183.—Argyle: Land and freshwater shells; GODFREY, t. c. p. 237.

Ireland:—Leitrim: Notes on Mollusca; GRIERSON (216).—River Bann: *Amphipeplea glutinosa*; GREEN, Irish Natural. x, p. 132.—Sligo: *Planorbis corneus*; WELCH, t. c. p. 131.

Finland:—Fauna of Nurmijärvi Lake; STENROOS (559): Freshwater shells near Helsingfors; LEVANDER (318): A few freshwater shells from Skären Is.; LEVANDER, Acta Soc. Faun. Fenn. xviii, No. 6.

Denmark:—Mollusca from near Copenhagen; SELL (508).

Holland and Belgium:—List of land and freshwater Mollusca; MAITLAND (333).

Germany:—Landshells near Friedrichroda; GERBING, Zeitschr. Naturw. lxxiii, p. 302: Fauna of Brandenburg; REINHARDT (472): Freshwater Mollusca from Würzburg; ANON. (19).

France:—Distribution of *Margaritana margaritifera*; LETACQ (317): Land and freshwater shells at Cancale; MARTEL (340): Land and freshwater shells near Caen; MOUTIER (383).—Bourbonnais: List of landshells continued; DUMAS (169).—Seine-Inférieure: Mollusca; PENNETIER (421).

Switzerland:—Distribution of freshwater fauna; IMHOF (263).

South Russia:—Notes on land and freshwater shells, with new varieties; LINDHOLM (320).—Fauna of Kharkov; ROSEN (482).

Asia:—Notes on molluscs collected by Zichy; STURANY (577).

2. Circum-Mediterranean Region.

Italy:—*Xerophila vigiliana*, n. sp.; MONTEROSATO (378): Notes on fauna of hot springs; ISSEL (265 & 266).

Tirol:—Mollusca of the Kartitsch Valley; WIEDERMAYR (651).

Brünn (Moravia):—Occurrence of *Tucea nemoralis*; CZIŽEK, Verh. Ver. Brunn xxxviii, p. 43.

Seeberg:—Mollusca from; SCHMIDT (503).

Carinthia:—Review of Stylommatophora; GALLENSTEIN (196).

Thuringia:—Occurrence of *Pupa secale* and *Patula rupestris*; SCHMIDT (501).

Albania:—*Pomatia aestreichi*, n. sp.; KOBELT in ROSSMAESSLER (484).

Montenegro:—Review of fauna; WOHLBEREDT (662).

Greece:—*Clausilia patens*, n. sp.; WESTERLUND (641).

Crete:—*Clausilia leonisorum*, n. sp.; BOETTGER (57).

Chios:—*Clausilia mordella*, n. sp.; WESTERLUND (641).

Caucasus:—*Clausilia roseni*, n. sp.; WESTERLUND (641).

Caucasus and Central Asia:—Fauna; ROSEN (483).

Transcaspia:—*Buliminus (Subzebrinus) roseni*, n. sp.; KOBELT in MARTINI & CHEMNITZ (348).

Transcaucasia:—*Buliminus (Ena) schuschaënsis*, n. sp.; KOBELT in MARTINI & CHEMNITZ (348).

Asia Minor:—Notes on shells, with n. spp. of *Buliminus* from Syria and Cilicia and *Helix* from Syria; NAEGELE (388): *Levantina naegelei*, n. sp.; KOBELT in ROSSMAESSLER (484).

Egypt:—Occurrence of *Melania fasciata* at Mojet el Ambage; FRAAS (188).

White Nile:—List of mollusca collected; FLOWER (184).

Morocco:—New species of *Helix* and *Melanopsis*; PALLARY (401).

Algeria:—Notes on shells, with n. spp. of *Ferussacia*, *Helix*, and *Neritina*; PALLARY (402).

3. Central Asiatic Region.

[None.]

4. Chinese Region.

West China and Central Asia:—Review of fauna continued, with notes, and n. spp. of *Buliminus*, *Limnæa*, *Opeas*, and *Phædusa*; MOELLENDOERFF (376).

China:—N. spp. of *Clausilia*, *Hypselostoma*, and *Patula*; GREDLER (214).

Amur Region:—Notes on land and freshwater shells, with *Helix gerstfeldi*, n. sp.; DYBOWSKI (173).

River Angara:—N. spp. of *Choanomphalus*; DYBOWSKI (172).

Formosa:—*Eulota sargentiana*, n. sp.; PILSBRY (434).

5. Japanese Region.

Japan:—Revised list of Helicoid landshells with many notes; GUDE (219): *Philomycus fruhstorferi*, n. sp.; COLLINGE (115): Catalogue of *Clausilia*, with n. spp.; PILSBRY (445): Notes on *Clausilia*, with n. spp.; PILSBRY (444): New species of *Alyceus*, *Eulota*, *Ganesella*, and *Kaliella*; PILSBRY (440): New species of *Chloritis* and *Eulota*; GUDE (225): Notes on landshells, with n. spp. of *Alyceus*, *Carychium*, *Chloritis*, *Eulota*, *Ganesella*, and *Macrochlamys*; PILSBRY (442): Notes on landshells, with *Truncatella hiuensis*, n. sp.; PILSBRY (443): Many critical notes on landshells; PILSBRY (430): New species of *Clausilia*; PILSBRY (439): Notes on *Clausiliidae* and *Pupidae*, with n. spp. of former; PILSBRY (438): Notes on shells, with n. spp. of *Corbicula*, *Kaliella*, *Omphalotropis*, and *Sphærium*; PILSBRY (436): Notes on shells, with n. spp. of *Buliminus*, *Clausilia*, *Diplommatina*, *Georissa*, and *Gastrodontella*, n. gen.; MOELLENDOERFF (371): New varr. of land shells and n. spp. of *Clausilia*, *Eulota*, *Ganesella*, *Helicina*, *Trishoplita*, and *Vertigo*; PILSBRY (446): New species of *Kaliella* and *Trishoplita*; PILSBRY (449): New species of *Chloritis*, *Cyclophorus*, *Diplommatina*, *Eulota*, *Kaliella*, *Pupinella*, *Succinea*, and *Trochomorpha*; PILSBRY (435).

Loo Choo Islands:—New species of *Diplommatina* and *Macrochlamys*; PILSBRY (435): Mollusca of north-eastern Islands, with n. spp. of *Diplommatina* and *Ganesella*; PILSBRY (452): New species of *Carychium*, *Cyclotus*, *Diplommatina*, *Georissa*, *Kaliella*, and *Tornatellina*; PILSBRY (449): New species of *Buliminus*; PILSBRY (446): Review of *Clausiliidae*, with n. spp.; PILSBRY (437): New species of *Clausilia*, *Diplommatina*, *Helicina*, *Macrochlamys*, *Microcystina*, *Pupinella*, and *Spiropoma*; PILSBRY (439): *Chloritis oshimana*, n. sp.; GUDE (220).

Bonin Is.:—New species of *Succinea*; PILSBRY (434).

6. Atlantidean Region.

[None.]

b. PALÆOTROPICAL AFRICAN ZONE.

7. Central African Region.

Congo Free State:—Notes on land molluscs, with n. spp. of *Ceras*, n. gen., *Perideriopsis*, *Pseudoglossula*, and *Subulina*; DUPUIS & PUTZEYS (170): Notes on land and freshwater shells, with new varieties, and

n. spp. of *Streptaxis*, *Succinea*, and *Trochizonites*; DUPUIS & PUTZEYS (171): New species of *Achatina*, *Melania*, and *Unio*; DAUTZENBERG (152).

Somaliland:—A few landshells; HOYLE & STANDEN (261).

British East Africa:—New species of *Ennea*, *Limicolaria*, *Martensia*, and *Opeas*; SMITH (537).

German East Africa:—*Buliminus (Rhachis) fülleborni*, n. sp.; MARTENS (344).

Tanganyika:—New species of *Assimineia*, *Burtonia*, *Corbicula*, *Reymondia*, and *Syrnolopsis*; MABILLE (329).

8. *West African Region.*

Cameroons:—*Semisinus (Rhinomelania*, n. subgen.) *zenkeri*, n. sp.; MARTENS (347).

9. *South African Region.*

South Africa:—New species of *Buliminus*, *Curvella*, *Ennea*, *Fausculus*, *Hypolysia*, n. gen., *Obeliscus*, *Pupa*, and *Subulina*; MELVILL & PONSONBY (361): Review of slugs, with n. spp. of *Apera* and *Oopelta*; COLLINGE (110).

10. *Malagasy Region.*

Madagascar:—*Clavator heimbürgi*, n. sp.; KOBELT (302) and in MARTINI & CHEMNITZ (348): New species of *Cyclostoma* and *Xesta*; FULTON (195).

Mauritius:—*Achatina rediviva*, n. sp.; MABILLE (329).

11. *Afro-Arabian Region.*

[Sokotra:—*Bonnanius bouvieri*, referred here doubtfully last year, really comes from Fernando Noronha; PILSBRY in TRYON (607), p. 104.]

Abyssinia:—Five new species of *Buliminus*; KOBELT in MARTINI & CHEMNITZ (348): New species of *Cerastus*; KOBELT (301).

c. PALÆOTROPICAL ORIENTAL ZONE.

12. *Indian Region.*

India:—Lists of *Ariophanta* and *Euplecta*, with n. spp.; BLANFORD (52): New species of *Diplommatina*; FULTON (194).—*Simla*, *Bensonia mimela*, n. sp.; BLANFORD (50).

Ceylon:—*Euplecta laevis*, n. sp.; BLANFORD (52).

13. *Indo-Chinese Region.*

Burma:—New species of *Ampullaria* and *Vivipara (Idiopoma*, n. subgen.); PILSBRY (433): *Sesara mouleyitensis*, n. sp.; GUDE (221).

Perak:—*Amphidromus perakensis*, n. sp.; FULTON (195).

Indo-China:—N. spp. of *Unio* and *Corbicula*; BAVAY & DAUTZENBERG (32).

Annam:—Notes on shells, with n. spp. of *Amphidromus* and *Xestina*; MOELLENDORFF (372): New species of *Microparmarion* [described as from Andaman Is.]; COLLINGE (111): *Microparmarion brunneopallescens*, n. sp.; COLLINGE (115): Notes on freshwater bivalves; HEUDE (247).

Tonkin :—New species of *Myotesta*, n. gen., *Philomycus*, and *Veronicella*; COLLINGE (115): Notes on *Plectopylis*, with n. spp.; GUDE (223): New species of *Plectopylis*; GUDE (224): New species of *Chloritis*, *Cyclophorus*, *Diplommatina*, *Ennea*, *Heteropoma*, *Lagochilus*, *Macrochlamys*, *Microcystina* (?), *Otesia*, *Phædusa*, *Plectopylis* and *Satsuma*; MOELLENDORFF (374): New species of *Coneuplecta*, *Chloritis*, *Cryptosoma*, *Cyclophorus*, *Ennea*, *Euhadra*, *Helicarion*, *Kaliella*, *Lagochilus*, *Macrochlamys*, *Microcystina*, *Phædusa*, *Platyraphe*, *Plectopylis*, *Pseudopomatias*, *Pupina*, *Satsuma*, *Sitala*, *Streptaxis*, and *Trochomorpha*; MOELLENDORFF (373): *Ostracolethe fruhstorfferi*, n. gen. and sp. belonging to *Ostracolethidae*, n. fam.; SIMBOTH (530).

14. Indo-Malay Region.

N. Borneo :—New species of *Diplommatina* and *Opisthostoma*; FULTON (194).

N. W. Borneo :—List of slugs with n. spp. of *Damayantia*, *Isselentia*, n. gen., *Onchidium*, *Veronicella*, and *Wiegmannia* (n. gen.); COLLINGE (108).

Kangean Island :—*Helicina rollei*, n. sp.; SYKES (584).

Banguey I. :—New species of *Diplommatina* and *Opisthostoma*; FULTON (194).

15. Philippine Region.

Philippines :—Review of genus *Cochlostyla*, with two new species; HIDALGO (248): *Vitrinoconus moellendorffi*, n. sp.; PILSBRY (434): New species of *Microcystina*; MOELLENDORFF (377).

Philippines (?) :—N. spp. of *Corbicula*; BULLEN (76).

d. AUSTRALIAN ZONE.

16. Austro-Malayan Region.

Celebes :—Distribution and affinities of the fauna; SARASIN (495).

17. Australian Region.

Australia :—*Bothriembryon martensi*, n. sp.; KOBELT in MARTINI & CHEMNITZ (348).

Queensland :—New species of *Endodonta*, *Iravadia*, and *Stenothyra*; HEDLEY (236).

18. Austro-Polynesian Region.

New Caledonia :—*Leucocharis porphyrochila*, n. sp.; DAUTZENBERG & BERNIER (153): *Draparnaudia crossei*, n. sp.; PILSBRY in TRYON (607).

19. Polynesian Region.

Hawaiian Islands :—Critical notes on fauna; ANCEY (11).—New species of *Neucombia* and *Partulina* from Molokai; BORCHERDING (62).

Pelew Is. :—*Helicina pelewensis*, n. sp.; SYKES (582).

Tahiti :—*Veronicella agassizi*, n. sp.; COCKERELL (101).

20. *Neozealandian Region.*

[None.]

e. NEANTARCTIC ZONE.

21. *Patagonian Region.*

Falkland Islands:—Occurrence of *Limnæa*; MELVILL & STANDEN (363).
 Argentina:—New species of *Bulimulus* and *Guppya*; ANCEY (14).
 Argentina and Uruguay:—Occurrence of *Limax variegatus*; BERG (38).
 Paraguay:—*Epiphragmophora dormeri*, n. sp.; GUDE (221).

22. *Chilian Region.*

[None.]

f. NEOTROPICAL ZONE.

23. *Peruvian Region.*

Peru:—*Bulimus filocinctus*, n. sp.; ROLLE (480): *Bulimus icterostomus*, n. sp.; MARTENS (344): New species of *Peronæus*; DAUTZENBERG (150): *Bulimulus dentaxis*, n. sp.; PILSBRY in TRYON (607): *Clausilia pilsbryi*, n. sp.; SYKES (580): New species of *Drymæus*; DA COSTA (133).

24. *Colombian Region.*

Ecuador:—*Strophocheilus indentatus*, n. sp.; DA COSTA (133).
 Colombia:—*Pleurodonte clappi*, n. sp.; PILSBRY (450): *Nenia smithiæ*, n. sp.; PILSBRY (451): *Labyrinthus colombiensis*, n. sp.; DA COSTA (134): New species of *Drymæus*; PILSBRY in TRYON (607): N. spp. of *Drymæus* and *Neocyclotus*; DA COSTA (133).

25. *Brazilian Region.*

Brazil:—New species of *Ancylus*, *Bulimulus*, *Drymæus*, and *Guppya*; ANCEY (14): New species of *Bulimulus*, *Odontostomus*, and *Strophocheilus*; PILSBRY in TRYON (607).—Amazon River: *Drymæus succinea*, n. sp.; PILSBRY in TRYON (607).

Bolivia:—*Helicina leptalea*, n. sp.; ANCEY (14): *Temesa magnifica*, n. sp.; SYKES (580).

26. *Mexican Region.*

Central America:—Report on the land and freshwater Mollusca completed; MARTENS (342): Distribution and relationship of fauna; MARTENS (345).

Panama:—*Drymæus chiriquiensis*, n. sp.; DA COSTA (133).

Guatemala:—*Amnicola stollii* and *vulcani*, n. spp.; MARTENS (342): *Aperostoma confusum*, n. sp.; SYKES (585).

Costa Rica:—New species of *Glandina* and *Streptostyla*; MARTENS (342).

Lower California:—Occurrence of *Truncatella* on Guadalupe Island; PILSBRY, Nautilus xv, p. 83.

27. Caribbean Region.

Jamaica:—N. spp. of *Cylindrella*; VENDRYES (620): N. spp. of *Glandina*; VENDRYES (619): *Pleurodonte adamsiana*, n. sp.; CLAPP (97): *Adamsiella jarvisi*, n. sp.; HENDERSON (241).

Martinique:—On fauna; BORDAZ (63).

Haiti:—*Ceratodiscus solutus*, n. gen. and sp.; SIMPSON & HENDERSON (566): Notes on landshells; HENDERSON (240).

Porto Rico:—Review of non-marine fauna; DALL & SIMPSON (148).

Bahamas:—Landshells of Fortune Island; HENDERSON (242).

g. NEARCTIC ZONE.

28. American Region.

N. America:—Notes on *Pisidia* and their relations to European species; STERKI (562): Catalogue of Binney and Bland collection, with many notes, &c.; GRATACAP (210): *Limnæa woodruffi*, n. sp., Lake Michigan; BAKER (26): Fauna of Genesee River; BAKER (24): N. spp. of *Pisidium*; STERKI (566): Introduction of *Limnæa auricularia*; BAKER (23): Review of *Physæ*, with n. spp.; CRANDALL (128).—Washington: Occurrence of *Limax nictelius* Bgt.; COCKERELL, J. Malac. viii, p. 88.—Rhode Island: Occurrence of *Truncatella truncatula*; C. W. J., Nautilus xv, p. 35.

Florida: Occurrence of *Truncatella clathrus* Lowe; CLAPP, Nautilus xiv, p. 130.—Georgia: *Strophitus wrightianus*, n. sp.; WALKER (631).—Northern Illinois: Revision of *Limnæida*; BAKER (27).—Northern Indiana: Molluscan fauna of the lakes; BLATCHLEY & ASHLEY (53).—Maine: Shells from Aroostook County; NYLANDER (393).—Massachusetts: Occurrence of *Goniobasis virginica*; WINKLEY, Nautilus xv, p. 83.—Michigan: N. spp. of *Pisidium*; STERKI (564): N. spp. of *Sphærium*; STERKI (565).—Missouri: *Unio missouriensis*, n. sp.; MARSH (336).—Montana: Notes on land and freshwater shells; ELROD (177): A few land and freshwater shells; ELROD, Tr. Amer. Micr. Soc. xxii, pp. 76 & 78.—New York: *Amnicola letsoni*, n. sp.; WALKER (629).—Ohio and New York: *Pisidium streator*, n. sp.; STERKI (564).—Pennsylvania: Occurrence of *Vallonia pulchella* at Pittsburg; CLAPP, Nautilus xiv, p. 130.—Texas: *Quadrula lananensis*, n. sp.; FRIERSON (191).

29. Californian Region.

West America:—Notes on molluscs; ORCUTT (398).

California:—Note on *Limax maximus*; COCKERELL, J. Malac. viii, p. 124: Exotic molluscs; KEEP (280): *Epiphragmophora fidelis* found in San Mateo Co.; GIFFORD, Nautilus xiv, p. 144: Occurrence of Japanese *Vivipara*; STEARNS (555): Reprinted notes on Mollusca; ORCUTT (396): Notes on fauna of islands off coast; HEMPHILL (239).—Santa Catalina Island: Occurrence of *Epiphragmophora kelletti*; GAYLORD, Nautilus xv, p. 72.

30. Canadian Region.

Labrador:—Land and freshwater molluscs from Ungava; WHITEAVES (644).

MARINE MOLLUSCA.

1. Arctic Province.

Notes on molluscs taken by the "Ermak" in Arctic Seas; KNIPOWITSCH (299).

White Sea:—Considerations on the Molluscan Fauna; KNIPOWITSCH (300).

Murman Sea:—Molluscan fauna; KNIPOWITSCH (300).

Arctic and north of North Atlantic Oceans:—List of Mollusca obtained by the Norwegian North-Atlantic expedition 1876-1878; FRIELE & GRIEG (190).

Franz Josefs Land:—New species of *Margarita* and *Tridonta*; POLONERA (455).

2. Boreal Province.

N. Atlantic:—Cephalopoda obtained by the 'Princess-Alice' with new species of *Dubioteuthis*, *Entomopsis* and *Teleoteuthis*; JOUBIN (278): Forms described as Australian from 'Challenger Station 164B' probably really belong here; HEDLEY (236).

Norway:—Comparison of the recent molluscan fauna of the Christiania Fiord with those of the late and post-glacial deposits of the vicinity; BRØGGER (73).

3. Celtic Province.

Study of fauna continued; KOBELT (303).

Finland:—Two nudibranchs near Helsingfors; LEVANDER (318).

Norway:—Notes on *Mya*; JENSEN (269).

Holland and Belgium:—List of marine Mollusca; MAITLAND (333).

British Isles:—Checklist of marine Mollusca; CHASTER, etc. (91): Notes on *Eulimida*, with *E. anceps*, n. sp.; MARSHALL (339): Many critical notes, with corrections of Jeffreys' 'British Conchology'; COOKE (121): Popular works on shells; GORDON (204): STEP (561).—Norfolk: List of marine Mollusca; MAYFIELD (350).—Yorkshire: *Trochus zizyphinus*, white var. at Scarborough; HEY, Naturalist 1901, p. 157.—Northumberland: Marine fauna; LEBOUR (315): BULMAN (80).—Cumberland: Occurrence of *Helcion pellucidum*; MURRAY, Naturalist 1901, p. 157.—Cleveland coast: occurrence of *Octopus*; FAWCETT, Naturalist 1901, p. 4.—Yorkshire: *Acmaea testudinalis*; HEY, Naturalist 1901, p. 163.—Isle of Man: List of fauna; BYNE & LEICESTER (83).—Port Erin: Notes on Mollusca; HERDMAN, P. Liverp. biol. Soc. xv, p. 19.—West of Scotland: Marine Mollusca; KNIGHT (296).—Ireland: Marine Mollusca of Port Stewart; KNIGHT (295).

4. Lusitanian Province.

France:—Comparison of opisthobranchs of Atlantic and Mediterranean coasts; VAYSSIÈRE (618): List of marine shells occurring at Cancale; MARTEL (340): Marine fauna of Luc-sur-Mer; BRASIL (72): Notes on *Fissurella*; LOCARD (322).

Corsica:—Fauna completed, with n. spp. of *Alvania*, *Bittium*, *Cerithium*, *Gadinia*, *Ianthina*, *Ostrea*, *Pectunculus*, and *Scalaria*; LOCARD & CAZIOT (323).

Italy:—List of Mollusca from the Island of Ischia; BELLINI (36).

Mytilene:—*Pseudovermis papillosa*, n. sp. [Nudibranchiata]; KOWALEVSKY (306).

Sea of Marmora:—New species of *Chatoderma*; KOWALEVSKY (307).

Sebastopol:—*Hedyle tyrtowii*, n. sp.; KOWALEVSKY (305).

Morocco:—*Nassa tingitana*, n. sp.; PALLARY (401).

5. Aralo-Caspian Province.

Caspian Sea:—List of some species; STURANY (577).

6. West African Province.

[None.]

7. South African Province.

South Africa:—*Onithochiton* (?) *isipingoensis*, n. sp.; SYKES (581): List of *Volutidae*, with n. spp.; SMITH (536): N. spp. of *Drillia*, *Gibbula*, *Mitra*, *Odostomia*, *Solariella*, *Trophon*, and *Turbonilla*, from the Kowie; SOWERBY (550): New species of *Donax* and *Fossarus*; PILSBRY (433): New species of *Lucina* and *Venus*; VANATTA (611): Notes on shells, with n. spp. of *Acmea*, *Cerithium*, *Clavatula*, *Columbella*, *Eulima*, *Euthria*, *Glyphis*, *Murex*, *Marginella*, *Odostomia*, *Patella* (?), *Radius*, *Rissoia*, *Terebra*, and *Tritonidea*; SMITH (538).—Natal: *Pteria* (*Margaritifera*) *natalensis*, n. sp.; JAMESON (268).

S. W. Africa:—*Austrofusus appressus*, n. sp.; MARTENS (346).

8. Indo-Pacific Province.

Madagascar:—Occurrence of *Cypræa citrina*; ANCEY, *Nautilus* xv, p. 83.

Mauritius:—*Pteria* (*Margaritifera*) *mauriti*, n. sp.; JAMESON (268).

Réunion:—*Mangilia eudeli*, n. sp.; SOWERBY (551).

Off E. Africa:—New species of *Ancillaria*, *Basilissa*, *Cassia*, *Columbarium*, *Conus*, *Fusus*, *Margarita*, and *Pleurotoma*; MARTENS (346).

Zanzibar:—*Haminea zanzibarica*, n. sp.; VANATTA (611).

Red Sea:—Collection of Pelecypods, with n. spp. of *Amussium*, *Cardita*, *Chione*, *Cuspidaria*, *Diplodonta*, *Gastrochæna*, *Limopsis*, *Lyonsia*, *Pseudonecaera*, n. gen., *Raeta*, *Scintilla*, *Solecurtus*, and *Tellina*; STURANY (576): New species of *Columbella*, *Fusus*, *Nassa*, *Pleurotoma*, and *Solariella*; STURANY (576A): *Natica rodatz*, n. sp.; SCHEPMAN (499).

Djibouti and Ali-Sabieh:—Notes on a collection of shells, with forms figured, n. varr., and n. spp. of *Clanculus*, *Marginella*, and *Pinna*; FISCHER (181).

Somaliland:—Notes on marine shells, with *Sepia koestlitzi*, n. sp.; HOYLE & STANDEN (261).

Aden:—New species of *Bittium*, *Cerithium*, *Cumingia*, *Delphinula*, *Donax*, *Natica*, and *Sistrum*; MELVILL (359).

Persian Gulf:—Many species recorded, with new forms of *Columbella*, *Coralliophila*, *Cyclostrema*, *Cylichna*, *Cythara*, *Mangilia*, *Mitra*, *Nassa*, *Tornatina*, *Triforis*, and *Turbonilla*; MELVILL & STANDEN (362).

Gulf of Oman:—Many species quoted, including new forms of *Adis*, *Adeorbis*, *Argyropeza*, *Cadulus*, *Cancellaria*, *Columbella*, *Cyclostrema*, *Cylichna*, *Cythara*, *Daphnella*, *Drillia*, *Mangilia*, *Mathilda*, *Mitra*, *Nassa*, *Natica*, *Odostomia*, *Phos*, *Rissoa*, *Rissoina*, *Scala*, and *Trichotropis*; MELVILL & STANDEN (362).

Mekran coast and Karachi:—Many species quoted, including new forms of *Bittium*, *Cadulus*, *Clathurella*, *Columbella*, *Daphnella*, *Eulima*, *Fenella*,

Mangilia, *Nassa*, *Odostomia*, *Syrnola*, *Tornatina*, and *Turbonilla*; MELVILL & STANDEN (362).

Off Bombay and Arabian Sea:—Several species recorded, including *Nassa angriassensis*, and *Rissoa (Alvania) alveata*, n. spp.; MELVILL & STANDEN (362).

Siam:—*Cingulina trilineata*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (348).

S. Indian Ocean:—*Margarita periomphalia*, n. sp.; MARTENS (346).

Sumatra:—*Dunkeria sumatrensis*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (348).

W. of Sumatra:—New species of *Borsonia*, *Fusus* (?) and *Pleurotoma*; MARTENS (346).

New Guinea:—*Pteria (Margaritifera) panasense*, n. sp.; JAMESON (268).

Philippine Islands:—N. spp. of *Arca*, *Cerithium*, *Drillia*, *Elusa*, *Emarginula*, *Eulima*, *Nassa*, *Phos*, *Pyrgulina*, *Scala*, *Stilifer*, *Subularia*, and *Triforis*, from Cebu; SOWERBY (548).

Philippines (?):—*Bullastra velutinoides*, n. gen. and sp.; BERGH (41).

China:—New species of *Cingulina* and *Constantia*; CLESSIN in MARTINI & CHEMNITZ (348).

Pitcairn I.:—*Pteria (Margaritifera) pitcairnensis*, n. sp.; JAMESON (268).

Bird Island:—*Pisania delicatula*, n. sp.; SOWERBY (551).

Samoa Islands:—*Cryptoplax elioti*, n. sp.; PILSBRY (428).

Viti Is.:—*Doridium obscurum*, n. sp.; BERGH (41).

Australia?:—*Pedipes liratus*, n. sp.; KOBELT in MARTINI & CHEMNITZ (348).

Torres Straits:—New species of *Callomphala*, *Liotia*, and *Teinostoma*; HEDLEY (236): Occurrence of *Euselenops luniceps*; PACE (399).

North Queensland:—Revision of types of marine shells of the 'Chevert' expedition; HEDLEY (238).

N. Australia:—*Pteria (Margaritifera) maxima*, n. sp.; JAMESON (268).

9. Australo-Zealandic Province.

Australian Region:—Notes on shells, with suggestion that forms described from 'Challenger Station 164B' really are North Atlantic; HEDLEY (236): Review of wood-boring Molluscs; HEDLEY (236).

W. Australia:—*Pteria (Margaritifera) carchariarum*, n. sp.; JAMESON (268).

North-west Australia:—*Vanikoro expansa*, n. sp.; SOWERBY (551).

New South Wales:—New species of *Periploma*, *Philobrya*, and *Sarepta* (?); HEDLEY (237): New species of *Chlamys*, *Leuconopsis*, *Lima*, and *Mathilda*; HEDLEY (236).

Tasmania:—Review of fauna with critical notes, many species figured, and n. spp. of *Cardiella* and *Legrandina*, n. gen.; TATE & MAY (589).

New Zealand:—*Lucina huttoniana*, n. sp.; VANATTA (611).

10. Japonic Province.

Japan:—*Axinopsis viridis*, n. sp.; DALL (146): New species of *Cingulina* and *Monopygma*; CLESSIN in MARTINI & CHEMNITZ (348): *Clementia vatheliti*, n. sp.; MABILLE (329): New species of *Arca*, *Anatina*, *Cantharidus*, *Clanculus*, *Cryptoplax*, *Donax*, *Lima*, *Onithochiton*, *Petricola*, *Tapes*, *Turbonilla*, & *Venus*; PILSBRY (434): Notes on shells, with n. spp. of *Assiminea*, *Buccinum*, *Eulima*, *Euthria*, *Mitra*, *Solen*, *Syrnola*, *Tellina*, and *Tritonidea*; PILSBRY (436): *Cardium (Papyridia) hungerfordi*, n. sp.; SOWERBY (551).

Loo Choo Is.:—New species of *Cerithium*, *Eulima*, and *Nerita*; PILSBRY (433): New species of *Patella* and *Tapes*; PILSBRY (434).

11. *Aleutian Province.*

British Columbia :—Remarkable nudibranch ; ELIOT (176).

Unalaska :—Occurrence of *Ancistroteuthis robusta* (Dall) Steenstrup ; THOMPSON (596).

Bering Sea :—*Diplodonta aleutica*, n. sp. ; DALL (146) : *Liomesus nassula*, n. sp. ; DALL (143).

12. *Californian Province.*

West America :—Notes on molluscs ; ORCUTT (398) : Revision of *Lucinacea* with new species of *Axinopsis*, *Codakia*, *Phacoides*, and *Thyasira* ; DALL (146).

California :—Reprinted notes on Mollusca ; ORCUTT (396) : Notes on *Coryphella iodina* and *Hermisenda opalescens* ; COCKERELL (103) : *Tethys ritteri*, n. sp. ; COCKERELL (104) : *Bitium californicum*, n. sp. ; DALL & BARTSCH (147) : *Atrina oldroydii*, n. sp. ; DALL (141) : *Submarginula yatesii*, n. sp. ; DALL (140) : Exotic molluscs ; KEEP (280) : *Cymbulioopsis vitrea*, n. sp. ; HEATH & SPAULDING (234) : New species of *Coryphella*, *Facelina*, and *Thecacera* ; COCKERELL (102) : New species of *Haliotis* ; ORCUTT (397).

13. *Panamic Province.*

Galapagos :—New species of *Codakia* ; DALL (146).

14. *Peruvian Province.*

Chile :—*Thyasira thomeana*, n. sp. ; DALL (146) : *Entocolax schiemenzii*, n. sp. ; VOIGT (626).

15. *Antarctic Province.*

Antarctic :—New species of *Paramenia* and *Proneomenia* ; PELSENER (418).

W. Patagonia :—*Thyasira magellanica*, n. sp. ; DALL (146).

Falkland Is. :—*Cymbiola mangeri*, n. sp. ; PRESTON (460) : Collection of marine molluscs ; MELVILL & STANDEN (363).

16. *Argentine Province.*

[None.]

17. *Caribbean Province.*

Brazil :—*Phacoides amiantus*, n. sp. ; DALL (146).—Pernambuco : Molluscs, with new species of *Drillia* and *Mulinia* ; DALL (144).

Nicaragua :—Notes on a few shells ; FLUCK, *Nautilus* xv, p. 48.

West Indies :—*Conus beddomei*, n. sp. ; SOWERBY (551).

Cuba :—*Codakia cubana*, n. sp. ; DALL (146).

St. Martin :—*Atys sharpi*, n. sp. ; VANATTA (611).

Martinique :—On fauna ; BORDAZ (63).

Porto Rico :—Review of fauna, with new species of *Cerithiopsis*, *Circe*, *Cocculina*, *Columbella*, *Diplodonta*, *Drillia*, *Eulina*, *Ischnochiton*, *Lucina*, *Macoma*, *Mangilia*, *Marginella*, *Meretrix*, *Myrtæa*, *Nassarina*, *Niso*, *Oliva*, *Omalaxis*, *Phos*, *Pleurobranchus*, *Rissoa*, *Scala*, *Sphenia*, *Tellina*, *Terebra*, *Tethys*, *Thyasira*, and *Turbonilla* ; DALL & SIMPSON (148) : *Codakia portoricana*, n. sp. ; DALL (146).

18. *Transatlantic Province.*

Eastern Canada :—Fauna ; WHITEAVES (647).

E. United States :—Review of Lucinacea with new species of *Phacoides* ; DALL (146).

New England :—List of nineteen species ; HOWE (258).

Rhode Island :—On some Pelecypoda ; CARPENTER (89).

Bermuda :—*Phacoides bermudensis*, n. sp. ; DALL (146) : *Tornatina bermudensis*, n. sp. ; VANATTA (611).

GEOLOGICAL.

N.B.—The remarks given at the beginning of the preceding section, p. 45, also apply here.

On fossils characteristic of certain formations ; BOURGEOIS (68) : Many changes in nomenclature proposed and a few Gastropods described ; COSSMANN (123) : Critical notes on nomenclature, with new names ; COSSMANN (125) : Note on *Ctenostreon pectiniiformis* ; ETHERIDGE (180) : Notes on *Limidae* ; PHILIPPI (427) : On the relationships of *Aucella* and *Pseudomonotis* ; POMPECKJ (458) : Should it be *Stefanella* or *Distefanella*, etc. ? ; VINASSA DE REGNY, Rev. paleozool. v, p. 219 : The group of *Oxytoma inaequalis* Sby., with n. varr. ; WAAGEN (627).

British Isles :—List of extinct non-marine Mollusca ; NEWTON (390).—Few derived fossils in the Boulder Clay of Dallinghoo, Suffolk ; BULLEN, Quart. J. Geol. Soc. lvii, p. 285.

France :—Many notes on fauna of French Alps ; KILIAN & LORY (291).—Few fossils from vicinity of Argenteuil ; JANET, C.R. Congr. Geol. viii, pp. 974 & 975.—Studies on fauna of Diois, etc., with n. spp. of Cephalopods, etc. ; PAQUIER (404 & 405).

Italy :—Fossils from the vicinity of Lake Iseo ; BALTZER (29).

Servia :—Lists of fossils ; PAVLOVIĆ (412).

Asia :—Japanese *Trigonidae* ; ANON. (18).—Apparently new genera, *Cicatrites*, *Japonites*, and *Parahoplites*, of Ammonia from Japan ; ANON. (16).—Fossils from Persia ; DOUVILLÉ, C.R. Congr. Geol. viii, pp. 439-446.—Fossils from the Salt Range, Punjab ; NOETLING (391).—India : Few fossils from the Baluchistan Desert ; VREDENBURG, Mem. geol. Surv. India xxxi, p. 261.—Apparently n. sp. of Ammonite from Japan ; YABE (673).

North America :—*Nassa beaumontensis*, n. sp., from Texas ; ALDRICH (3).—Palæontology of Niagara Falls district ; GRABAU (207).—Palæontology of Eighteen Mile Creek and Lake Shore sections of Erie Co., N. Y. ; GRABAU (206).—U.S.A. : Notes on fossils ; ORCUTT, W. Amer. Scient. xii, pp. 11-13.—Fossils from the Rio Grande Coal-Fields ; VAUGHAN (614).

1. POST-TERTIARY.

Fauna of the '*Leda pernula* Clay' of Selbjergaard, W. Hanherred ; MADSEN, Medd. Dansk Geol. For. No. 6, pp. 2-7, and 17 & 18.—Quaternary fossils from Zarravecchia-Stretto ; SCHUBERT, Verh. geol. Reichsanst. 1901, p. 236.

British Isles :—Post-glacial shells from Rothessay ; BALLANTYNE (28).—Occurrence of *Helix hortensis* (?) in a cave deposit on the River Wye ; BATE, Geol. Mag. 1901, p. 100.—Fossils from the Alexandra Dock Extension, Hull ; CROFTS, P. Yorksh. geol. Soc. xiv, p. 250.—Shells from rubble-drift at Portland Bill ; BULLEN (79).—Pleistocene fossils from the Thames Valley ; HINTON & KENNARD (254).—Fossils from the shell-

bearing clay in Kintyre; JESSEN (270).—Fauna of West Wittering, Sussex; JOHNSON (273).—Molluscs from river-drift in Essex; JOHNSON & WHITE (274).—Few fossils, including *Neritina fluviatilis*, from the High Terrace gravel of Swanscombe; KENNARD & SALTER, P. Geol. Ass. xvii, p. 138.—Occurrence of *Tellina balthica* near Hull; T. S. [SHEPPARD] & J. W. S. [STRATHER], Tr. Hull. Geol. Soc. v, p. 36.—Non-marine fauna of the South of England; KENNARD & WOODWARD (286).—Occurrence of *Planorbis stroemii* West. in Holocene of the Thames Valley; KENNARD & WOODWARD (284).—Holocene fauna of peat and forest-bed at Westbury-on-Severn; KENNARD & WOODWARD (285).

Belgium:—Fossils from Wuestwezel; ERTBORN, Ann. Soc. malac. Belgique xxxvi, Bull. p. xxi.

Holland:—Few Alluvial fossils; SIX, Ann. Soc. geol. Nord xxix, p. 167.

Denmark:—Lists of fossils; DAVIS (154).—Lists of marine Diluvial fossils; HARDER (232).—Marine Mollusca; MADSEN, Medd. Dansk Geol. For. No. 5, pp. 1–22.—Bogense district, fauna; MADSEN (331).—Alleroed, fauna; HARTZ & MILTHERS (233).—Few marine shells; MILTHERS, Medd. Dansk Geol. For. No. 6, p. 39.—Gudbjerg, fresh-water Mollusca, with *Nematurella stenostoma*, n. sp.; NORDMANN in MADSEN & NORDMANN (332).—Lists of Quaternary fossils; RØRDAM & MILTHERS (481).

Norway:—Late- and Post-glacial molluscan faunas of the Christiania region, with n. spp. of *Neptunea* and *Sipho*; BRØGGER (73).

Germany:—Mecklenburg, few Post-glacial fossils; GEINITZ, Centrbl. Mineral. 1901, pp. 582–584.—Diluvial Mollusca from Swabia; KOKEN (304).—Few Pleistocene Mollusca from Schleswig-Holstein; MADSEN, Medd. Dansk Geol. For. No. 6, p. 56.—*Helix banatica* near Bilzingsleben; WÜST (670).—Mollusca from near Weissenfels; WÜST (669).—Fossils from Thuringia; WÜST (668).

France:—Fauna of Lower Provence; FOURNIER & REPELIN (187).—Fossils from Dunkerque; GOSSELET, Ann. Soc. geol. Nord xxix, pp. 128–134.

Portugal:—Shells from kitchen middens at Carvalhal d'Aljubarrota; DELGADO, Commun. geol. Portugal iv, p. 167.

Italy:—Marine and non-marine Mollusca deposited by inundations of the Tiber; CLERICI, Boll. Soc. geol. Ital. xx, pp. 131–136.—Marine Mollusca from Otranto, with *Gadinia nitida*, n. sp.; DAINELLI (135).—Non-marine Mollusca in travertine from the province of Siena; DELZANNA, Boll. Soc. geol. Ital. xx, p. 32.—Revision of Post-pliocene fauna of Nizzetti (Catania); SCALIA (497).

Austro-Hungary:—Few Diluvial fossils from Nagy-Maros; BÖCKH (56).—Few Loess fossils from Hungary; HORUSITZKY, Mt. Ungar. geol. Anstalt xii, p. 242.—Few Diluvial fossils from Buda-Pesth; HORUSITZKY, t. c. p. 347.—Non-marine Mollusca from Komorn; HORUSITZKY, op. cit. xiii, pp. 118 & 119 [1900].—Lists of fossils from Galicia; ŁOMNICKI (324).—Occurrence of Loess shells near Medlowitz, Moravia; RZEHAŁ (489).—Few Diluvial Mollusca from Hungary; TELEGD (590).

Arctic:—Fauna of the White Sea district; KNIPOWITSCH (300).—Post-pliocene Mollusca from Spitzbergen; KNIPOWITSCH (298).—Introduction of *Yoldia arctica* into White Sea; RAMSAY (466).

Siberia:—Few non-marine Mollusca from Kurgan; RICCI, Boll. Soc. geol. Ital. xx, p. 369.

Africa: Occurrence of *Murex tenuispinatus* in Egypt; BARRON & HUME, C.R. Congr. Geol. viii, p. 871.—Mollusca from raised beach on Perim Island; BULLEN (77).—Few fossils from Egypt; HUME, C.R. Congr. Geol. viii, pp. 919–927.—Pleistocene non-marine fauna of Algeria, with apparently new forms; PALLARY (403).—Quaternary fossils from German East Africa, with *Pecten werthii* and *Ostrea hyotiformis*, n. spp.; PHILIPPI in WERTH (639).

North America:—Few marine shells from Hudson Strait; BELL, Rep. geol. Surv. Canada xi, p. 31 m.—Non-marine Mollusca from the Toronto Formation; COLEMAN (105).—Few marine shells from Ontario; COLEMAN, Bull. Geol. Soc. Amer. xii, pp. 129–146.—Post-pliocene fauna of Niagara Falls District; LETSON in GRABAU (207).—Shells from marl-deposit in Maine; NYLANDER (393).—Pleistocene land Mollusca from Maryland; O'HARRA, Maryland Geol. Surv., Allegany County, p. 131.—*Succinea chrysis* from Yukon and Koyukuk Flats; SCHRADER, Rep. U. S. Geol. Surv. xxi, Pt. II, p. 479.—Loess molluscs at Iowa City; SHIMEK (516).—Loess fossils from Iowa; SHIMEK in UDDEN (610).—Loess fossils from Iowa; UDDEN (609).—Alluvial fossils from the Missouri; UDDEN (610).—Post-Pliocene non-marine Mollusca from Huron County, Michigan; WALKER & LANE (632).—Distribution of E. Canadian forms; WHITEAVES (647).

West Indies:—Antigua, sub-fossil non-marine Mollusca; SPENCER, Quart. J. Geol. Soc. lviii, pp. 490–505.—St. Kitts, Post-pliocene marine Mollusca; SPENCER, t. c. p. 537.—St. Kitts, sub-fossil land shells; SPENCER, t. c. lvii, p. 541.

2. TERTIARY.

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Octopus should be replaced by *Polypus* ; HOYLE, Mem. Manchester Soc. xlv, No. 9, p. 1 : *O. macropus*, osmotic properties of salivary glands ; BOTTAZZI & ENRIQUES (67).
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Sepia officinalis, anatomy ; HESCHELER (245).
Sepia kostliitzi, Somaliland ; HOYLE & STANDEN, Mem. Manchester Soc. xlv, No. 8, p. 1, fig. : n. sp.
†*Stenosepia*, n. subgen. of *Belosepia*, for *B. compressa*, Blvlla. ; VINCENT, Ann. Soc. malac. Belgique xxxv, p. 20.
Teloteuthis caroli, Gulf of Gascony, p. 64, *jattai*, Madeira, p. 67 ; JOUBIN, Result. campag. scient. Albert I de Monaco, Fasc. xvii, figg. : n. spp.

AMMONEA.

- †Synopsis of Neocomian Ammonea ; SIMIONESCU (523).
†*Baculites*, larval coil ; SMITH (541).
†*Ceratitida*, on the family ; PHILIPPI (426).
†*Cicatriles* [? n. gen.], Japan ; ANON, J. geol. Soc. Tokyo viii, pp. 360-362.
†*Codoceras*, Hyatt, renamed *Paracodoceras*, q. v.
†*Dasyceras*, Hyatt, renamed *Paradasyceras*, q. v.
†*Delphinites*, n. subg. of *Garnieria*, n. gen. for *D. ritteri*, n. sp. from the Valangian of S.E. France ; SAYN, Mem. Soc. geol. France, Pal. No. 23, pp. 15 & 23.
†*Garnieria* [nom. præocc.], n. gen. [?= *Platylenticeras*, Hyatt] for the Neocomian group of *Oxyntoceras heteropleurum* and *gorrili* ; SAYN, t. c. p. 14.
†*Hamulinites*, n. gen., type *Hamulina muniere*, Nicklès, Cretaceous ; PAQUIER, Trav. Lab. geol. Grenoble v, p. 554.
†*Hatchericeras*, n. gen. of Ammonea, type *H. patagonense*, n. sp., Cretaceous, Patagonia ; STANTON (553), p. 35.
†*Japonites* [? n. gen.], Japan ; ANON, J. geol. Soc. Tokyo viii, pp. 360-362.
†*Kondiloceras*, n. gen. for *K. manciatii*, n. sp., Lias, Italy ; FUCINI, Palæontogr. ital. iii, p. 14.
†*Paquiericeras*, n. gen. for *P. paradoxum*, n. sp. from the Valangian of S.E. France ; SAYN, Mem. Soc. geol. France, Pal. No. 23, p. 26.
†*Paracodoceras*, n. n. for *Codoceras*, Hyatt, nec *Codocera*, Esch. ; COSSMANN, Rev. paleozool. v, p. 58.
†*Paradasyceras*, n. n. for *Dasyceras*, Hyatt nec Steph. ; COSSMANN, t. c. p. 58.
†*Parahoplites* [? n. gen.], Japan ; ANON., J. geol. Soc. Tokyo viii, pp. 360-362.
†*Prodromites*, n. gen., type *Goniatis gorbii*, Miller, Lower Carboniferous, Mississippi Valley ; SMITH & WELLER, J. Geol. ix, p. 257.
†*Thurmannia*, Hyatt, renamed *Thurmanniceras*, q. v.
†*Thurmanniceras*, n. n. for *Thurmannia*, Hyatt nec Heer ; COSSMANN, Rev. paleozool. v, p. 58.

TETRABRANCHIATA.

- Nautilus*, living animal ; DEAN (155) : Anatomy ; PELSENER (419).

II. GASTROPODA.

Gastropoda, account continued by SIMROTH in BRONN (74).
Distribution of slugs; SIMROTH (529).

PULMONATA.

Phylogeny and anatomy of agnathous Pulmonates; SIMROTH (532).
Pulmonata, cerebral cavities; PELSENER (420).

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- Apera burnupi*, anatomy; COLLINGE, J. Malac. viii, p. 71.
Apera purcelli, South Africa; COLLINGE, Ann. S. African Mus. ii, p. 230, fig.: n. sp.
Circinaria concolor, Fér., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 374.
Ennea zanguebarica, Morel., is a synonym of *E. obesa*, Gibbons; ANCEY, J. Conchyl. xlix, p. 219: *E. longula*, Smith, is a synonym of *Bulinus inconspicuus*, Morel.; ANCEY, t. c. p. 220: *E. bourguignatiana*, Ancey, stands; ANCEY, t. c. p. 220: *E. iwakawa*, n. var.; PILSBRY, Nautilus xv, p. 65: *E. albida*, Putzeys, animal [species equals *Streptostele horei*, Smith, fide MS. note by Dupuis]; DUPUIS & PUTZEYS (170): *E. ovoidea*, Brug., note on; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. lix.
Ennea (Gulella) ugandensis, British East Africa; SMITH, J. Malac. viii, p. 93, fig.: *E. (Diaphora) densecostulata*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 66: *E. (Microstrophia) plagiotoma*, Tonkin; MOELLENDORFF, t. c. p. 110: *E. berthæ*, p. 315, *columnella*, *foriclusa*, p. 316, *hickeyana*, p. 317, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, figg.: n. spp.
Excisa, Ailly, is an unnecessary section; ANCEY, J. Conchyl. xlix, p. 219.
Glandina pittieri, Costa Rica; MARTENS, Biol. Centr.-Amer. p. 611, fig.: *G. (Varicella) taylori*, p. 133, (*V. deflorescens*, p. 134, Jamaica; VENDRYES, Nautilus xiv, figg.: n. spp.
Natalina caffra, anatomy; MURDOCH, P. Malac. Soc. London iv, p. 171.
Paryphanta hochstetteri, anatomy; BEUTLER (42): *P. hochstetteri*, anatomy; MURDOCH, P. Malac. Soc. London iv, p. 171: *P. hochstetteri edwardi*, anatomy; COLLINGE, Ann. Nat. Hist. vii, pp. 68-71; GODWIN-AUSTEN, t. c. p. 488.
Rhenea coresia, anatomy; MURDOCH, P. Malac. Soc. London iv, p. 168.
Rhytida greenwoodi, meesoni, anatomy; MURDOCH, t. c. p. 166: *R. greenwoodi*, anatomy; COLLINGE, Ann. Nat. Hist. vii, p. 66.
Schizoglossa novoseelandica, anatomy; COLLINGE, t. c. p. 71: *S. novoseelandica*, anatomy; MURDOCH, P. Malac. Soc. London iv, p. 169.
Streptaxis micans, Putzeys, animal; DUPUIS & PUTZEYS (170): *S. costulatus*, n. var.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 65.
Streptaxis (Odontartemon) cristatellus, Tonkin; MOELLENDORFF, t. c. p. 66: *S. translucidus*, p. li, *gaudioni*, p. lii, Congo Free State; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull., figg.: n. spp.
Streptostyla chiriquiana, n. n. for *S. flavescens*, Da Costa nec Shuttleworth; MARTENS, Biol. Centr.-Amer. p. 615. [Same species, also but later, renamed *pallidus*; DA COSTA, P. Malac. Soc. London iv, p. 185.]
Streptostyla (Pittieria) bicolor, Costa Rica; MARTENS, Biol. Centr.-Amer. p. 617, fig.: n. sp.

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- Zonitidæ*, Philippine species illustrated, with critical notes; MOELLEN-
DORFF (377).
Revised list of Japanese *Zonitidæ*, with notes and figures; GUDE (219).
Agriolimax meridionalis, Doering, equals *Limax levii*; BERG, Comun.
Mus. Buenos Aires i, p. 292.
Ariophanta, list of species; BLANFORD, P. Malac. Soc. London iv, p. 244 :
A. politissima, Pfr., anatomy; GODWIN-AUSTEN, t. c. p. 261 : *A. ampulla*, Bens., anatomy; GODWIN-AUSTEN, t. c. p. 187 : *A. thyreus*
n. subsp. *heteræa*, S. India; BLANFORD, t. c. p. 248, fig.
Ariophanta canarica, p. 248, (*Xestina*) *gassii*, p. 249, India; BLANFORD,
t. c. figg. : n. spp.
Bensonia, review of genus; BLANFORD, t. c. p. 178 : *B. mainwaringi*,
Nevill, description and figure; BLANFORD, t. c. p. 180.
Bensonia mimela, Simla; BLANFORD, t. c. p. 179, fig. : n. sp.
Collingea, notes on; COLLINGE, Tr. R. Soc. Edinb. xl, p. 303.
Coneuplecta confinis, p. 68, *subangulata*, p. 69, Tonkin; MOELLENDORFF,
Nachrbl. Deutsch. malak. Ges. 1901 : n. spp.
Cryptosoma imperator, n. var.; MOELLENDORFF, t. c. p. 111.
Cryptosoma fragile, Tonkin; MOELLENDORFF, t. c. p. 67 : n. sp.
Damayantia carinata, N.W. Borneo; COLLINGE, Tr. R. Soc. Edinb. xl,
p. 298, fig. : n. sp.
Euplecta, list of species; BLANFORD, P. Malac. Soc. London iv, p. 246 :
E. binayaensis, p. 250, *verrucula*, p. 251, notes on; BLANFORD, t. c. :
E. semidecussata n. subsp. *transfretata*, p. 249, *travancorica* n. subsp.
agastya, *indica* n. subsp. *malabarica*, p. 250, India; BLANFORD, t. c. figg.
Euplecta levii, Ceylon, *fluctuosa*, p. 251, *granulifera*, (?) *mucronifera*,
p. 252, (?) *oribates*, India; BLANFORD, t. c., figg. : n. spp.
Gastrodon tella, n. gen. for *G. japonica*, n. sp., Japan; MOELLENDORFF,
Nachrbl. Deutsch. malak. Ges. 1901, p. 38. [Is a synonym of
Kaliella multivolvus; PILSBRY, Ann. Nat. Hist. viii, p. 8.]
Guppya sericea, Argentina, *goyazensis*, Brazil; ANCEY, Naturaliste 1901,
p. 82 : n. spp.
Helicarion tongkingensis, Tonkin; MOELLENDORFF, Nachrbl. Deutsch.
malak. Ges. 1901, p. 66 : n. sp.
Indrella, n. subgen. of *Ariophanta*, type *A. ampulla*, Bens.; GODWIN-
AUSTEN, P. Malac. Soc. London iv, p. 190.
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Kaliella elata is a var. of *Situla circumcincta*, p. 6, *symmetrica* is a synonym
of *pagoduloides*, p. 7; PILSBRY, Ann. Nat. Hist. viii.
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Ges. 1901 : n. spp.
Lamprocystis spadix, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 194.
Macrochlamys dalingensis may equal *Bensonia mainwaringi*; BLANFORD,
P. Malac. Soc. London iv, p. 180.
Macrochlamys dulcis, Japan; PILSBRY, P. Ac. Philad. 1901, p. 562 : *M. stenogyra*, *declivis*, p. 67, *glyptorhaphe*, p. 68, Tonkin; MOELLENDORFF,
Nachrbl. Deutsch. malak. Ges. 1901 : *M. euspira*, Tonkin; MOELLEN-
DORFF, t. c. p. 111 : *M. tanegashima*, Loo Choo Is.; PILSBRY, P. Ac.
Philad. 1901, p. 498 : *M. perfragilis*, *gudoi*, Loo Choo Is.; PILSBRY,
t. c. p. 345 : n. spp.

- Martensia permanens*, British East Africa; SMITH, J. Malac. viii, p. 94, fig.: n. sp.
- Microcystina hiraseana*, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 498: *M.* (?) *opaca*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 113: *M. tongkingensis*, p. 70, *leucocystis*, *manso-nensis*, p. 71, Tonkin; MOELLENDORFF, t. c.: *M. lutescens*, p. 140, *leucoplax*, p. 145, Philippine Islands; MOELLENDORFF (377), figg.: n. spp.
- Microcystis hirasei* is a synonym of *Macrochlamys micrograpta*; PILSBRY, Ann. Nat. Hist. viii, p. 6.
- Microparmarion annamica*, n. n. for *M. andamanica*, Collinge; COLLINGE, J. Malac. viii, p. 120.
- Microparmarion brunneopallenscens*, Annam; COLLINGE, t. c. p. 120: *M. moellendorffi*, *andamanica*, Andaman Is. [really Annam, p. 52]; COLLINGE, t. c. p. 17, figg.: n. spp.
- Naninida*, monograph continued; KOBELT in MARTINI & CHEMNITZ (348).
- Nilgiria* is a synonym of *Xestina*; BLANFORD, P. Malac. Soc. London iv, p. 243.
- Otesia* (*Coneuplecta*) *ochthyogira*, p. 111, (*C.*) *globulosa*, (*C.*) *sculptilis*, p. 112, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901: n. spp.
- Philomycus fruhstorferi*, Japan, *dendriticus*, Tonkin; COLLINGE, J. Malac. viii, p. 119: n. spp.
- Philonesia* is a synonym of *Microcystis*; ANCEY, J. Conchyl. xlix, p. 136.
- Ratnadivipia irradians*, Pfr., anatomy; COLLINGE, J. Malac. viii, p. 63.
- Ravana*, n. subgen. of *Ariophanta*, type *A. politissima*, Pfr.; GODWIN-AUSTEN, P. Malac. Soc. London iv, p. 261.
- Sesara mouleyitensis*, Burma; GUDÉ, J. Malac. viii, p. 15, fig.: n. sp.
- Sitala striolata*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 68: n. sp.
- Trochomorpha frützei*, Bttg., is a synonym of *T. horiomphala*, Pfr.; PILSBRY, P. Ac. Philad. 1901, p. 344.
- Trochomorpha* (*Sivella*) *montana*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 71: *T. gouldiana*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 344: n. spp.
- Trochonanina mesogæa*, Mtns., animal figured, with n. var.; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. lvii.
- Trochozonites* (*Moaria*) *trifilaris*, p. liii, *percostulatus*, p. liv, Congo Free State; DUPUIS & PUTZEYS, t. c. figg.: n. spp.
- Vûrea harimensis* is the young of *Macrochlamys danitzi*; PILSBRY, Ann. Nat. Hist. viii, p. 5.
- Vitronoconus moellendorffi*, Philippines; PILSBRY, P. Ac. Philad. 1901, p. 194: n. sp.
- Wiegmannia*, n. gen., p. 299, for *W. dubius*, Wieg., *gigas*, p. 300, *ponsonbyi*, *borneensis*, p. 302, n. spp., N.W. Borneo; COLLINGE, Tr. R. Soc. Edinb. xl, fig.
- Xesta piperata*, Madagascar; FULTON, J. Malac. viii, p. 103, fig.: n. sp.
- Xestina*, note on genus, of which *Nilgiria* is a synonym; BLANFORD, P. Malac. Soc. London iv, p. 242.
- Xestina denserugata*, p. 45, *tenera*, *pharangensis*, p. 46, Annam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901: n. spp.

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- Myotesta*, n. gen. for *M. fruhstorferi*, p. 118, *punctata*, p. 119, Tonkin, n. spp.; COLLINGE, J. Malac. viii.
- Oopelta nigropunctata*, Mörch, anatomy; COLLINGE, Ann. S. African Mus. ii, p. 231.

Oopelta polypunctata, South Africa ; COLLINGE, t. c. p. 232, fig. : n. sp.
Ostracolethide, n. fam. for *Ostracolethe fruhstorfferi*, n. gen. & sp., Tonkin ;
 SIMROTH, Zool. Anz. xxv, p. 62.

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 Ann. Nat. Hist. viii, p. 157, fig. [species equals, and is one day later
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Eulota succincta, n. var. ; PILSBRY, P. Ac. Philad. 1901, p. 193 : *E.*
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- Ganesella tanegashima*, *japonica*, n. vars.; PILSBRY, P. Ac. Philad. 1901, pp. 565, 567 : *G. satsuma, heteroglypta*, are probably subspecies of *japonica*, Pfr.; PILSBRY, Ann. Nat. Hist. viii, p. 5 : *G. myomphala*, n. var.; PILSBRY, Nautilus xiv, p. 116.
- Ganesella tanegashima*, Loo Choo Is.; PILSBRY, Nautilus xv, p. 63 : *G. wiegmanna*, Japan; PILSBRY, op. cit. xiv, p. 116 : *G. fausta, adelina*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 546 : *G. selasia, cristata*, Japan, PILSBRY, t. c. p. 566 : n. spp.
- Helicella apiculiformis*, Ancey, is a synonym of *H. melolontha*, Shuttl.; ANCEY, J. Conchyl. xlix, p. 143.
- Helicidae*, nomenclature of European species; PILSBRY, Ann. Nat. Hist. viii, pp. 325-329.
- Helicigona setipila*, note on anatomy; WIEGMANN (652).
- Helicostyla dactylus*, Brod., stands, name *carinata*, Lea, being preoccupied; PILSBRY, Nautilus xv, p. 8.
- Helix*, occurrence of reversed forms; COLLIER (107) : *H. pomatia*, nerve cells of; BOCHENEK (55) : *H. aspersa*, monstrosity and variety; WOODRUFFE-PEACOCK, Naturalist 1901, p. 163 : *H. nemoralis* and *hortensis*, varieties; GYNGELL, Sci. Gossip vii, p. 286 : *H. pomatia*, nerve-cells; HOLMGREN (255) : *H. pisana, schlarotricha*, p. 731, *aspersa*, p. 734, n. varr.; PALLARY, C.R. Ass. France 1900 : *H. sandwicensis*, note on; ANCEY, J. Conchyl. xlix, p. 144 : *H. (Hemicycla) myristica*, Shuttl., note on; ANCEY, t. c. p. 143.
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- Iberus*, anatomy of some Italian species; WIEGMANN (652).
- Labyrinthus colombiensis*, Colombia; DA COSTA, Ann. Nat. Hist. viii, p. 557, fig. [= *Pleurodonte clappi*, Pils., q. v.] : n. sp.
- Leucochroa ootinella*, n. var.; PALLARY, C.R. Ass. France 1900, p. 731.
- Levantina naegelei*, Cilicia; KOBELT in ROSSMAESSLER (484), p. 54, fig. : n. sp.
- Mandarina mandarina*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 402.
- Plectopylis*, notes on, with figures of, several spp., with n. var. of *P. plectostoma*; GUDE, J. Malac. viii, p. 47 : *P. choanomphala*, Mlldff., is a synonym of *P. villedaryi*, Ancey; GUDE, t. c. p. 116 : *P. emigrans*, notes on; GUDE, J. Conchyl. xlix, p. 206 : *P. hirsuta, fruhstorferi*, and others figured; GUDE (223).
- Plectopylis pilsbryana*, p. 110, (*Endoplon*) *moellendorffi*, p. 111, Tonkin; GUDE, J. Malac. viii, figg. : *P. dautzenbergi*, p. 198, *bavayi*, p. 200, *tenuis*, p. 202, *fischeri*, p. 204, *anceyi*, p. 208, *persimilis*, p. 209, Tonkin; GUDE, J. Conchyl. xlix, figg. : *P. (Sinicola) fruhstorferi*, p. 114, (*Endoplon*) *hirsuta*, p. 115, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901 : *P. (Endoplon) choanomphala*, (*Sinicola*) *emigrans*, Tonkin; MOELLENDORFF, t. c. p. 75 : n. spp.

- Plectotropis polyplecta*, *pachysoma*, are synonyms of *Eulota horrida* and *scopasma*; PILSBRY, Ann. Nat. Hist. viii, p. 5.
- Pleurodonte*, several species from Porto Rico figured; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, pp. 380, 381.
- Pleurodonte adamsiana*, Jamaica; CLAPP, Nautilus xv, p. 33, fig.: *P. (Labyrinthus) clappi*, Colombia; PILSBRY, t. c. p. 34, figg.: n. spp.
- Pleuroxia*, Ancey, is the proper generic name for *Helix cyrtopleura*, Pfr.; ANCEY, J. Conchyl. xlix, p. 147.
- Polygyra stenotrema* without a lip-notch; PILSBRY, Nautilus xiv, p. 135: *P. thyroidea*, n. var.; PILSBRY, op. cit. xv, p. 8.
- Pomatia aestreichi*, Albania; KOBELT in ROSSMAESSLER (484), p. 54, fig.: n. sp.
- Satsuma brunnea* is a synonym of *Ganesella ferruginea*; PILSBRY, Ann. Nat. Hist. viii, p. 6.
- Satsuma oxytropis*, p. 113, *platyconus*, p. 114, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901: *S. pulchella*, *aximia*, p. 72, *concavospira*, *straminea*, p. 73, Tonkin; MOELLENDORFF, t. c.: n. spp.
- Tachea nemoralis*, variation in; BOYCOTT, Sci. Gossip viii, p. 223.
- Thersites bipartita*, Fér., anatomy; PACE, P. Malac. Soc. London iv, p. 205: *T. gulosa*, Gld., n. var.; HEDLEY, Rec. Austral. Mus. iv, p. 22.
- Trichia rubiginosa*, n. var.; LINDHOLM (320).
- Trishoplita collinsoni*, n. var.; PILSBRY, Nautilus xv, p. 19: *T. tosana*, Gude, is prior to *suprazonata*, Pils.; PILSBRY, l. c.: *T. cretacea*, n. var.; PILSBRY, Nautilus xiv, p. 107; *T. dacosta*, *goodwini*, n. varr.; PILSBRY, P. Ac. Philad. 1901, p. 403: *T. hilgendorfi*, *collinsoni*, n. varr.; PILSBRY, t. c. p. 547: *T. hilgendorfi*, *tosana*, n. varr.; PILSBRY, t. c. pp. 564 & 565.
- Trishoplita smithiana*, Japan; PILSBRY, Nautilus xiv, p. 116: *T. hiugensis*, Japan; PILSBRY, op. cit. xv, p. 20: n. spp.
- Xerophila vigiliana*, Italy; MONTEROSATO, Nachrbl. Deutsch. malak. Ges. 1901, p. 186: n. sp.

BULIMIDÆ and BULIMULIDÆ.

- Amphidromus metabletus*, n. varr.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 49: *A. xiengensis*, Morel, should be *A. xiensensis*; FISCHER, J. Conchyl. xlix, p. 156: *A. palaceus*, anatomy; COLLINGE, J. Malac. viii, p. 50.
- Amphidromus perakensis*, Perak; FULTON, t. c. p. 104, fig.: *A. rhodostylus*, Annam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 47: n. spp.
- Beddomea*, anatomy, group is section of *Amphidromus*; PILSBRY, P. Malac. Soc. London iv, p. 158.
- Bothriembryon martensi*, Australia; KOBELT in MARTINI & CHEMNITZ (348), *Buliminida*, p. 765, fig.: n. sp.
- Bulimulida*, review of, completed; PILSBRY in TRYON (607).
- Bulimulus exilis*, Gmel., *diaphanus*, Pfr., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1901, i, p. 378: *B. maculatus*, Lea, is a synonym of *B. dormani*, Binn.; ANCEY, J. Conchyl. xlix, p. 222: *B. connivens*, Pfr., comes from near Benguela; ANCEY, t. c. p. 221: *B. lacticolor*, Sby., probably comes from Lower California; ANCEY, t. c. p. 221.
- Bulimulus dentatus*, Peru, p. 143, *stilbe*, Brazil, p. 145; PILSBRY in TRYON (607), figg.: *B. luteolus*, Brazil, p. 82, *B. (Rhinus) argentinus*, Argentina, p. 92; ANCEY, Naturaliste 1901: n. spp.
- Bulimus (Dryptus) filocinctus*, Peru; ROLLE, Nachrbl. Deutsch. malak. Ges. 1901, p. 93: *B. icterosomus*, Peru; MARTENS, t. c. p. 149: n. spp.
- Clavator heimbürgi*, Madagascar; KOBELT, t. c. p. 96 [also with fig.; KOBELT in MARTINI & CHEMNITZ (348), p. 730]: n. sp.

- Curvella caloglypta*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 320, fig.: n. sp.
- Draparnaudia*, see *Helicida*.
- Drymaeus expansus*, Pfr., n. var.; DA COSTA, P. Malac. Soc. London iv, p. 239, fig.: *D. roseatus*, n. var.; PILSBRY in TRYON (607), p. 161: *D. liliaceus*, Fér., *elongatus*, Bolt., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 379.
- Drymaeus chiriquiensis*, Panama, *obliquistriatus*, *cylindricus*, *elsteri*, Peru, p. 238, *subventricosus*, *exoticus*, Colombia, p. 239; DA COSTA, P. Malac. Soc. London iv, figg.: *D. gereti*, Brazil; ANCEY, Naturaliste 1901, p. 93: *D. cognatus*, Colombia, p. 155, *succinea*, Amazon River, p. 160, *sanctamarthæ*, Colombia, p. 161; PILSBRY in TRYON (607), figg.: n. spp.
- Leucocharis porphyrochila*, New Caledonia; DAUTZENBERG & BERNIER, J. Conchyl. xlix, p. 215, fig.: n. sp.
- Odontostomus pyriformis*, n. n. for *Bulimus doeringii*, Kobelt, 1882 nec 1878; PILSBRY in TRYON (607), p. 72.
- Odontostomus gemellatus* (Ancey), Brazil; PILSBRY in TRYON (607), p. 170: n. sp.
- Peronæus baeri*, *iocosensis*, Peru; DAUTZENBERG, J. Conchyl. xlix, pp. 131, 213, 214, figg.: n. spp.
- Placostylus porphyrostomus*, *fibratus*, monstrosities figd.; DAUTZENBERG, J. Conchyl. xlix, p. 217.
- Strophocheilus milleri*, p. 118, *bronni*, p. 120, n. var., *gravocinctus*, n. n. for *Bulimus filocinctus*, Rolle nec Reuss, p. 126; PILSBRY in TRYON (607).
- Strophocheilus* (*Dryptus*) *indentatus*, Ecuador; DA COSTA, P. Malac. Soc. London iv, p. 239, fig.: *S. calus*, p. 119, *yporanganus* (Iher. & Pils.), p. 120, *fragilior*, p. 121, Brazil; PILSBRY in TRYON (607), figg.: n. spp.

BULIMINIDÆ, CYLINDRELLIDÆ, and PUPIDÆ.

- Anisoloma*, n. sect. of *Pupa*, for *P. ponsonbyana* and others; ANCEY, J. Conchyl. xlix, p. 141.
- Bathyaxis*, Ancey, is a good genus; ANCEY, t. c. p. 223.
- Bifidaria armigerella*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 484.
- Bonnannius bouvieri*, Jouss., is a synonym of *Hyperaulax ramagei*, Smith; PILSBRY in TRYON (607), p. 104.
- Buliminus*, anatomy of many species; WIEGMANN (653): Review of species from Central Asia, with *B. schuensis*, n. n. for *setschuanensis*, Heude nec Hilber, p. 321; MOELLENDORFF (376): *B. hirasei*, Pils., is a synonym of *B. reticulatus*, Rve.; ANCEY, J. Conchyl. xlix, p. 138: *B. moreletianus*, note on; ANCEY, t. c. p. 139: *B. nipponicus* equals *hirasei*; PILSBRY, Ann. Nat. Hist. viii, p. 8: *B. bambuseti*, Marta., note on; SMITH, J. Malac. viii, p. 95, fig.: *B. purus*, West., sinistral var.; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1901, p. 27: *B. messageri*, n. var.; MOELLENDORFF, t. c. p. 76: *B. rarus* (Naegele MS.) n. n. for *B. elæa*, Naegele nec Kobelt, p. 36, with n. var. of *B. detritus*, p. 37; KOBELT in ROSSMAESSLER (484): *B. callistoderma*, n. var.; PILSBRY, Nautilus xiv, p. 128: *B. djurdjurenensis*, anatomy; MURDOCH, P. Malac. Soc. London iv, p. 174: *B. reinianus*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 402.
- Buliminus* (*Subzebrinus*) *roseni*, Transcaspia, p. 704, (*Ena*) *schuschlensis*, Transcaucasia, p. 727, (*Cerastus*) *erlangeri*, p. 735, *malleatus*, p. 744, *neumanni*, p. 745, *gazamulata*, p. 746, *ruppellianus*, p. 747, Abyssinia; KOBELT in MARTINI & CHEMNITZ (348), figg. [first two also in Ross-

- MAESSLER (484)]: *B. (Rhachis) dimerus*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 320, fig.: *B. (Petræus) acbensis, elia*, Syria, p. 23, (*Napæus*) *exquisitus*, Cilicia, p. 25; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1901: *B. (Subzebrinus) nipponicus*, Japan; MOELLENDORFF, t. c. p. 40: *B. (Rhachis) fülleborni*, German East Africa; MARTENS, t. c. p. 148: *B. eucharistus*, p. 128, *luchuanus*, p. 129, Loo Choo Is.; PILSBRY, Nautilus xiv: *B. (Mirus) gracilispirus*, p. 317, (*M.*) *brizoides*, (*M.*) *acuminatus*, p. 323, (*M.*) *pyrinus*, p. 327, (*Subzebrinus*) *saccatus*, p. 331, (*S.*) *fultoni* (Schm. & Bttg. MS.), p. 334, (*S.*) *umbilicaris*, p. 335, (*S.*) *beresowskii*, (*S.*) *macrostoma*, p. 336, (*S.*) *substrigatus*, p. 337, (*S.*) *dolichostoma*, p. 338, (*S.*) *bretschneideri*, p. 339, (*S.*) *malinostoma*, p. 341, (*Pupinidius*, n. subgen.) *streptaxis*, p. 343, (*P.*) *pupinella*, p. 344, (*P.*) *pupinidius*, (*P.*) *gregorii*, p. 345, (*P.*) *anacamptus*, (*P.*) *nanpingensis*, p. 346, (*P.*) *porrectus*, p. 347, (*Petræomastus*, n. subgen.) *semifartus*, p. 350, (*P.*) *mucronatus*, (*P.*) *breviculus*, p. 351, (*P.*) *platycheilus*, p. 354, (*P.*) *oxyconus*, p. 355, (*Serina*) *microconus*, p. 357, (*S.*) *diplacheilus*, p. 358, (*S.*) *solutus*, p. 361, (*Holcauchen*, n. subgen.) *rhusius*, (*H.*) *clausiliiformis*, p. 364, (*H.*) *rhapsis*, p. 365, (*H.*) *micropeas*, (*H.*) *sulcatus*, p. 366, (*H.*) *entocraspedius*, (*H.*) *strangulatus*, p. 367, (*Clausiliopsis*, n. sect.) *phaeoraphe*, (*C.*) *clathratus*, p. 371, (*C.*) *clamellatus*, (*C.*) *buechneri*, p. 372, (*C.*) *kobelti*, p. 373, (*Puppopsis*) *torquilla*, (*P.*) *soleniscus*, p. 376, (*Lophauchena*, n. sect.) *crystalellus*, p. 377, (*Coccoderma*, n. sect.) *granifer*, p. 379, West China and Central Asia; MOELLENDORFF, Annuaire Mus. St. Petersb. vi, figg.: n. spp.
- Cerastus erlangeri*, p. 86, *malleatus*, p. 87, *neumanni*, *gazamulata*, p. 88, *ruppellianus*, p. 89, Abyssinia; KOBELT, Nachrbl. Deutsch. malak. Ges. 1901: n. spp.
- Cerionida*, review of, commenced; PILSBRY in TRYON (607); *C. striatellum*, Guerin, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 376.
- Chondrula tridens*, n. var.; LINDHOLM (320).
- Clausilia*, note on anatomy; WIEGMANN (652): Review of Palearctic species; WESTERLUND (641): Review of Japanese species, with n. varr. of *C. attrita*, Bttg., *platydera*, v. Mart., *aurantiaca*, Bttg.; PILSBRY (445): *C. laminata*, study of natural selection in; WELDON (636): *C. hokkaidoensis* is a subspecies of *perpallida*, p. 7, *breviluna* and *omiensis* are synonyms of *aulacophora* and *mikado*, p. 8; PILSBRY, Ann. Nat. Hist. viii: Notes on some Japanese species, with n. varr. of *C. sericina* and *stereoma*; PILSBRY (444): *C. eurystoma*, *fultoni*, n. varr.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 41: *C. japonica*, *iotaptyx*, n. varr.; PILSBRY, Nautilus xiv, p. 108: *C. hungerfordiana*, *monelasmus*, p. 468, *euholostoma*, p. 469, *variegata*, p. 473, *iotaptyx*, p. 475, *gracilispira*, p. 477, *micropeas*, p. 478, *harimensis*, p. 480, notes on with figg.; PILSBRY, P. Ac. Philad. 1901: *C. bernardii*, p. 418, *ptychochila*, p. 419, *excellens*, p. 422, notes on with figg.; PILSBRY, t. c.: *C. perpallida* and *hokkaidoensis* are varr. of *micropeas*; PILSBRY, t. c. pp. 479 & 480: *C. japonica*, n. var.; PILSBRY, t. c. p. 482: *C. ducalis*, n. var.; PILSBRY, t. c. p. 615.
- Clausilia mordella*, Chios, p. 31, *roseni*, Caucasus, p. 174, *strenua*, Greece, *patens*, loc. incert., p. 175; WESTERLUND, Mem. Ac. St. Petersb. xi, No. 11: *C. pilsbryi*, Peru; SYKES, P. Malac. Soc. London iv, p. 222, fig.: *C. euholostoma*, *perpallida*, *harimensis*, *hokkaidoensis*, p. 108, *hiraseana*, p. 116, Japan; PILSBRY, Nautilus xiv: *C. (Hemiphædusa) breviluna*, (*H.*) *omiensis*, Japan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 42: *C. (Albinaria) leonisorum*, Crete; BOETTGER, t. c. p. 127: *C. hensaniensis*, China; GREDLER, t. c. p. 152: *C. (Luchuphædusa) callistochila*, p. 413, (*L.*) *nesiothauma*, p. 414, (*L.*) *oshima*,

- p. 415, (*L. pseudoshima*, p. 416, (*L. mima*, p. 417, (*Hemiphaedusa*) *orenilabium*, p. 420, (*H. munus*, p. 423, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, figg.: *C. (Zaptyx) hachijoensis*, p. 466, (*Euphaedusa*) *tryoni*, p. 467, (*Hemiphaedusa*) *perignobilis*, p. 481, (*Megalophaedusa*) *hiraseana*, p. 483, Japan; PILSBRY, t. c. figg.: *C. oscariana*, *higoensis*, p. 499, *ischna*, Japan, *tanegashima*, p. 500, *ptychocyma*, *entospira*, *pinto*, p. 501, *stereoma*, p. 502, Loo Choo Is.; PILSBRY, t. c.: *C. surugensis*, p. 633, *oxycyma*, p. 634, *orthatracta*, p. 636, *jacobiana*, p. 641, Japan; PILSBRY, t. c. figg.: *C. mitsukurii*, p. 648, *holotrema*, p. 654, *subignobilis*, *tantilla*, p. 655, *aulacopoma*, *bigeneris*, *dalli*, *una*, p. 656, Japan; PILSBRY, t. c.: n. spp.
- Clausiliopsis*, n. sect. of *Buliminus*, type *B. szechenyi*, Bttg.; MOELLEN-DORFF, Annuaire Mus. St. Petersb. vi, p. 368.
- Coccoderma*, n. sect. of *Buliminus*, type *B. granulatus*, Mlldff.; MOELLEN-DORFF, t. c. p. 378.
- Cylindrella sanguinea*, n. var.; VENDRYES, Nautilus xv, p. 3.
- Cylindrella (Anoma) inusitata*, (*A. cognata*, p. 1, (*A. propinqua*, p. 2, (*A. abnormis*, p. 3, (*Thaumasia) instabilis*, p. 4, Jamaica; VENDRYES, Nautilus xv, figg.: n. spp.
- Diadoma*, n. sect. of *Clausilia*, type *C. torticollis*, Olivi; WESTERLUND, Mem. Ac. St. Petersb. xi, No. 11, pp. xxi, 173.
- Eucalodium dalli*, n. n. for *E. strebeli*, Dall nec Pfeffr.; MARTENS, Biol. Centr.-Amer. p. 633.
- Ezbalea*, Jousseume, is a synonym of *Temesa*, Ad.; SYKES, P. Malac. Soc. London iv, p. 220.
- Fauxulus (Anisoloma) mcbeanianus*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 319, fig.: n. sp.
- Holcauchen*, n. subgen. of *Buliminus*, type *B. sulcatus*, Mlldff.; MOELLEN-DORFF, Annuaire Mus. St. Petersb. vi, p. 362.
- Holospira minima*, Martens, is a good species; ANON, Nautilus xiv, p. 118.
- Hypselostoma crossei*, n. var.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 76.
- Hypselostoma hupeanum*, China; GREDLER, t. c. p. 151: n. sp.
- Lophachen*, n. sect. of *Buliminus*, type *B. cristatellus*, Mlldff.; MOELLEN-DORFF, Annuaire Mus. St. Petersb. vi, p. 377.
- Luchuphaedusa*, n. sect. of *Clausilia*, for *C. oshima*, n. sp., and others; PILSBRY, P. Ac. Philad. 1901, p. 411.
- Nenia smithia*, Colombia; PILSBRY, Nautilus xv, p. 39, fig.: n. sp.
- Petræomastus*, n. subgen. of *Buliminus*, type *B. heudeanus*, Ancey; MOELLEN-DORFF, Annuaire Mus. St. Petersb. vi, p. 348.
- Phaedusa falciformis*, *grangeri*, *gisota*, n. var.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, pp. 77-79.
- Phaedusa (Euphaedusa) beresowskii*, p. 386, (*Hemiphaedusa*) *potanini*, p. 388, West China; MOELLENDORFF, Annuaire Mus. St. Petersb. vi, figg.: *P. (Rufospira) mansonensis*, p. 76, (*Hemiphaedusa*) *diplochilus*, (*H. gastrum*, p. 77, *gastrodes*, p. 78, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901: *P. (Oospira) rhopaloides*, p. 115, (*Pseudonenia*) *stenothyra*, p. 116, Tonkin; MOELLENDORFF, t. c.: n. spp.
- Pupa quinquedentata*, Born, anatomy; WIEGMANN (652); *P. pyramidula*, Pons. & Sykes, is a synonym of *P. debilis*, Mousson; ANCEY, J. Conchyl. xlix, p. 140.
- Pupa endoplax*, p. 319, *ridibunda*, p. 320, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, figg.: n. spp.
- Pupilla muscorum*, *heudeana*, n. varr.; MOELLENDORFF, Annuaire Mus. St. Petersb. vi, p. 381.
- Pupinidius*, n. subgen. of *Buliminus*, type *B. pupinidius*, n. sp.; MOELLEN-DORFF, t. c. p. 341.

- Reinia*, notes on the group ; PILSBRY, P. Ac. Philad. 1901, p. 470.
Temesa, note on genus ; SYKES, P. Malac. Soc. London iv, p. 220.
Temesa magnifica, Bolivia ; SYKES, t. c. p. 222, fig. : n. sp.
Vertigo hirasei, Japan ; PILSBRY, Nautilus xiv, p. 128 [figd. ; PILSBRY, P. Ac. Philad. 1901, p. 484] : n. sp.

STENOGYRIDÆ and ACHATINELLIDÆ.

- Achatina rugosa*, Putz., note on ; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. lx.
Achatina rediviva, Mauritius ; MABILLE, Bull. Soc. Philom. iii, p. 57 : *A. marteli*, Congo Free State ; DAUTZENBERG, Ann. Soc. malac. Belgique xxxvi, p. 3, fig. : n. spp.
Auriculella, notes on species ; ANCEY, J. Conchyl. xlix, p. 137.
Baldwinia, note on ; ANCEY, t. c. p. 137.
Ceras, n. gen. for *C. dautzenbergi*, *manyemaense*, n. spp., Congo Free State ; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. xxxviii, fig.
Forussacia yeffriana, Algeria ; PALLARY, C.R. Ass. France 1900, p. 734, fig. : n. sp.
Hypolysia, n. gen. for *H. florentia*, n. sp., South Africa ; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 318, fig.
Limicolaria oviformis, Ancey, really comes from Somaliland ; ANCEY, J. Conchyl. xlix, p. 140.
Limicolaria dohertyi, British East Africa ; SMITH, J. Malac. viii, p. 95, fig. : n. sp.
Neobeliscus, notes on anatomy ; PILSBRY, P. Ac. Philad. 1901, p. 142.
Newcombia costata, Molokai ; BORCHERDING, Nachrbl. Deutsch. malak. Ges. 1901, p. 57 : n. sp.
Obeliscus tymneaformis, South Africa ; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 317, fig. : n. sp.
Opeas amdoanum, West China ; MOELLENDORFF, Annuaire Mus. St. Petersb. vi, p. 390, fig. : *O. crenulata*, British East Africa ; SMITH, J. Malac. viii, p. 96, fig. : n. spp.
Partulina ida, p. 52, *schauinslandi*, p. 54, *meyeri*, p. 55, *macrodon*, p. 56, Molokai ; BORCHERDING, Nachrbl. Deutsch. malak. Ges. 1901 : n. spp.
Perideriopsis umbilicata, Putzeys, n. varr. ; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. xxxix.
Perideriopsis formosa, Congo Free State ; DUPUIS & PUTZEYS, t. c. Bull. p. xxxiv, fig. : n. sp.
Pseudoglossula hermicola, p. xxxv, *diaphana*, p. xxxvi, Congo Free State ; DUPUIS & PUTZEYS, t. c. Bull. figg. : n. spp.
Rhodea, list of genus ; SYKES, J. Malac. viii, p. 20.
Subulina (*Subulona*) *martensi*, Congo Free State ; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. xxxvii, fig. : *S. purcelli*, p. 317, *strigilis*, p. 318, South Africa ; MELVILL & PONSONBY, Ann. Nat. Hist. viii, figg. : n. spp.
Tornatellina inexpectata, Loo Choo Is. ; PILSBRY, Nautilus xv, p. 23 : n. sp.

SUCCINEIDÆ, ONCIDIIDÆ and VERONICELLIDÆ.

- Onchidium ponsonbyi*, N.W. Borneo ; COLLINGE, Tr. R. Soc. Edinb. xl, p. 308, fig. : n. sp.
Succinea hyalina, Shuttlw., figd. ; DALL & SIMPSON, Bull. U. S. Fish Comm., 1901, i, p. 372.

- Succinea pseudomalonyx*, Congo Free State; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. liv, fig.: *S. ogasawarae*, *punctulispira*, Bonin Is.; PILSBRY, P. Ac. Philad. 1901, p. 195: *S. hirasei*, Japan; PILSBRY, t. c. p. 348: n. spp.
- Veronicella fruhstorferi*, p. 120, *himerta*, p. 121, Tonkin; COLLINGE, J. Malac. viii: *V. agassizi*, Tahiti; COCKERELL, P. U. S. Mus. xxiii, p. 835: *V. shelfordiana*, p. 307, *eximia*, p. 308, N.W. Borneo; COLLINGE, Tr. R. Soc. Edinb. xl, figg.: n. spp.

BASOMMATOPHORA.

AURICULIDÆ, LIMNÆIDÆ and PHYSIDÆ.

- Ancylus lemoinei*, *leucaspis*, Matto-Grosso, Brazil; ANCEY, Naturaliste 1901, p. 103: n. spp.
- Aplaza sowerbyana*, D'Orb., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 371.
- Auriculidæ*, monograph continued; KOBELT in MARTINI & CHEMNITZ (348).
- Blauteria leonardi*, Crosse, note and fig.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 723.
- Carinifex ponsonbyi*, Smith, is a variety of *C. newberryi*; ANCEY, J. Conchyl. xlix, p. 225.
- Carychium minimum*, study of variation in; BOYCOTT, Sci. Gossip viii, p. 223.
- Carychium cymatoplax*, Loo Choo Is.; PILSBRY, Nautilus xv, p. 23: *C. pessimum*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 562: n. spp.
- Casidula plecotrematoides*, n. var.; MOELLENDOFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 44.
- Choanomphalus bicarinatus*, p. 120, *intermedius*, *omphalotus*, p. 122, *cryptomphalus*, *anomphalus*, p. 123, Angara River; DYBOWSKI, Nachrbl. Deutsch. malak. Ges. 1901: n. spp.
- Leuconopsis inermis*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 722, fig.: n. sp.
- +*Limnæidæ*, phylogeny, etc., of the Pontian forms; GORJANOVIĆ-KRAMBERGER (205): *Limnæa*, jaw and radula of some American species; BAKER (27): *L. reflexa*, n. var.; BAKER, Nautilus xv, p. 17: *L. auricularia*, note on deepwater form; ANDRÉ, J. Malac. viii, p. 35.
- Limnæa woodruffi*, Lake Michigan; BAKER, Bull. Chicago Ac. ii, p. 229, fig.: *L. cucunorica*, W. China; MOELLENDOFF, Annuaire Mus. St. Petersb. vi, p. 393: n. spp.
- Melampus coffeus*, L., *flavus*, Gmel., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1901, i, p. 368.
- Melampus ordinarius*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. viii, p. 321, fig.: n. sp.
- Pedipes mirabilis*, Mühlf., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1901, i, p. 369.
- Pedipes liratus*, Australia?; KOBELT in MARTINI & CHEMNITZ (348), *Auriculidæ*, p. 297, fig.: n. sp.
- Physa*, digitations of the mantle in; BAKER (25): Review of N. American species, with n. varr.; CRANDALL (128): *P. ancillaria*, n. varr.; WALKER, Nautilus xiv, p. 97.
- Physa rhomboidea*, p. 44, *walkeri*, p. 57, United States; CRANDALL, Nautilus xv: n. spp.
- +*Planorbis multiformis*, variation in; HILGENDORF (250): *P. cornuus*, nervous system; NABIAS (386 & 387): *P. guadeloupensis*, Sby., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1901, i, p. 370.
- Tralia pusilla*, Gmel., figd.; DALL & SIMPSON, t. c. p. 369.

GADINIIDÆ and AMPHIBOLIDÆ.

Gadinia requieni, Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 179: n. sp.

Salinator, Hedley, is an unnecessary genus; SMITH, P. Linn. Soc. N. S. Wales xxvi, p. 14.

OPISTHOBRANCHIATA.

Opisthobranchiata, their biology, morphology, ontogeny, and phylogeny; GUIART (226).

NUDIBRANCHIATA.

Nudibranchiata, points in the anatomy of; CARAZZI (88).

Fauna of Gulf of Marseilles, with anatomy of many species; VAYSSIÈRE (615).

Nudibranch, remarkable form from British Columbia; ELIOT, P. Malac. Soc. London iv, p. 163.

Aldisa berghi, Gulf of Marseilles; VAYSSIÈRE, Ann. Mus. Marseille vi, p. 27, fig.: n. sp.

Ancylodoris baikalensis, note on; DYBOWSKI (174).

†*Archeodoris*, apparently n. gen. for *A. carbonarius*, provisional name for undescribed supposed Carboniferous Nudibranch from Ayrshire; SMITH, Tr. geol. Soc. Glasgow xi, p. 298 [1900].

Candiella villafranca, Gulf of Marseilles; VAYSSIÈRE, Ann. Mus. Marseille vi, p. 101, fig.: n. sp.

Coryphella iodina, Cooper, note on; COCKERELL, J. Malac. viii, p. 121.

Coryphella cooperi, California; COCKERELL, t. c. p. 85: n. sp.

Facelina stearnsi, California; COCKERELL, t. c. p. 86: n. sp.

Goniodoris barroini, Gulf of Marseilles; VAYSSIÈRE, Ann. Mus. Marseille vi, p. 76, fig.: n. sp.

Hedyle tyrtonii, Sebastopol; KOWALEVSKY, Bull. Ac. St. Petersb. xii, p. 200: n. sp.

Hermisenda opalescens, Cooper; COCKERELL, J. Malac. viii, p. 122.

Pseudovermis is a mollusc; KOWALEVSKY, Bull. Ac. St. Petersb. xii, p. 202: Confirmed and is most nearly related to *Eolis*, with a n. sp.

P. papillosa, Mytilene; IDEM (306).

Thecacera velox, California; COCKERELL, J. Malac. viii, p. 87: n. sp.

TECTIBRANCHIATA.

Bullacea, anatomy of several species; BERGH (41).

Aplysia, physiology and anatomy of heart; STRAUB (570): Points in the anatomy of; CARAZZI (88): *A. limacina*, locomotion; JORDAN (277): *A. limacina*, some points in the anatomy; BOTTAZZI (66).

Atys, species described by Brazier from 'Chevert' Expedition, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 130.

Atys sharpi, St. Martin; VANATTA, P. Ac. Philad. 1901, p. 183, fig.: n. sp.

†*Aulacomerella*, Huene, is a Pteropod; HUENE, Centrbl. Mineral. 1901, p. 718. [Cf. Brachiopoda.]

Bullastra, n. gen. for *B. velutinoides*, n. sp., Philippines (?); BERGH (41), p. 254, fig.

- Cylichna brazieri*, Pils., and *reticulata*, Watson, are respectively synonyms of *amphizosta*, Watson, and *granosa*, Braz.; HEDLEY, Rec. Austral. Mus. iv, pp. 129 & 130: *C. subreticulata* and *labiata*, Watson, are synonyms respectively of *pulchra* and *dubiosa*, Braz.; HEDLEY, t. c. p. 330.
- Cylichna bushirensis*, Persian Gulf and Gulf of Oman, p. 454, *orenilabris*, Gulf of Oman, *faocensis*, Persian Gulf, p. 455; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: n. spp.
- Cymbuliopsis vitrea*, California; HEATH & SPAULDING, P. Ac. Philad. 1901, p. 509, fig.: n. sp.
- Dolabrifera* (?) *ascifera*, Rang, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 366.
- Doridium obscurum*, Viti Is.; BERGH (41), p. 307, fig.: n. sp.
- Euselenops luniceps*, note on; PACE, P. Malac. Soc. London iv, p. 202.
- Haminea succinea*, n. var.; VANATTA, P. Ac. Philad. 1901, p. 182, fig.
- Haminea zanzibarica*, Zanzibar; VANATTA, t. c. p. 182, fig.: n. sp.
- Hydatina tasmanica*, Bedd., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 725.
- Navanax inermis*, animal; COCKERELL, Nautilus xv, p. 72.
- †*Nowakia*, apparently n. gen. for several forms of *Tentaculites*, which belong to *Pteropoda*; GÜRICH, Jahresber. Schlesisch. Ges. lxxvii, p. 32.
- Phyllaplysia*, on its relationship; MAZZARELLI (351).
- Pleurobranchida*, monograph completed; VAYSSIÈRE (617).
- Pleurobranchus lacteus*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 367, fig.: n. sp.
- Ringicula abyssicola*, Braz., figd.; HEDLEY, Rec. Austral. Mus. iv, p. 129: *R. semistriata*, D'Orb., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 362.
- †*Tentaculites*, note on group; GÜRICH (228).
- Tethys parvula*, Mörch, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 366.
- Tethys* (*Neaplysia*) *ritteri*, California; COCKERELL, Nautilus xv, p. 90: *T. cervina*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 365, fig.: n. spp.
- Tornatina bullata*, Kien., *candei*, D'Orb., figd.; DALL & SIMPSON, t. c. pp. 362 & 363.
- Tornatina bermudensis*, Bermuda; VANATTA, P. Ac. Philad. 1901, p. 183, fig.: *T. crithodes*, Persian Gulf, *zoë*, Karachi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 453, figg.: n. spp.
- Volvula oxytata*, Bush, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 363.

NUCLEOBRANCHIATA.

- †*Watsonella*, n. gen. of (?) *Heteropoda* for *W. crosbyi*, n. sp., Cambrian, Boston; GRABAU, Pap. Boston Soc. iv, vol. i, p. 631.

PROSOBRANCHIATA.

PECTINIBRANCHIATA.

TOXOGLOSSA.

TEREBRIDÆ, CONIDÆ, PLEUROTOMIDÆ, and CANCELLARIIDÆ.

- Borsonia epigona*, W. of Sumatra; MARTENS, SB. Ges. naturf. Berlin 1901, p. 19: n. sp.

- Cancellaria (Trigonostoma) agalma*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 450, fig. : n. sp.
- Clathurella macleayi*, Braz., figd.; *darnleyi*, Braz., equals *albifuniculata*; HEDLEY, Rec. Austral. Mus. iv, p. 122 : *C. granulosisima, desalesei*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 370 & 371.
- Clathurella thalia*, Mekran Coast; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 445, fig. : n. sp.
- Clavatulula parilis*, South Africa; SMITH, J. Conch. x, p. 115, fig. : n. sp.
- Columbarium canaliculatum, cingulatum*, off E. Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 20 : n. spp.
- Conus clytospira*, Melv. & Standen, may be a var. of *milne-edwardsi*, Jous., with fig.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 430.
- Conus torquatus*, off East Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 15 : *C. beddomei*, West Indies; SOWERBY, J. Malac. viii, p. 101, fig. : n. spp.
- Cythara edithæ*, Gulf of Oman, *typhonota*, Persian Gulf; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 446, figg. : n. spp.
- Daphnella minutd*, fig.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 372 : *D. tasmanica*, Ten.-Woods, figd.; HEDLEY, op. cit. xiv, p. 725 : *D. fragilis*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 385.
- Daphnella cecilia*, Mekran Coast, *evergestis*, p. 447, Gulf of Oman, *receptoris*, Mekran Coast, p. 448, *veneris, xylois*, p. 449, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg. : n. spp.
- Drillia tricarinata*, Ten.-Woods, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 23 : *D. spaldingi*, Braz., figd.; HEDLEY, t. c. p. 122 : *D. cancellata, agnewi*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 368 : *D. persica*, Sm., *resplendens*, Melv., figd.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 441.
- Drillia greeleyi*, Pernambuco; DALL, P. Washington Ac. iii, p. 146 : *D. alcyonea*, p. 435, *othyrima, circumvertens*, p. 436, *clydonia*, p. 437, *omanensis*, p. 438, *prunulum*, p. 439, *tasconium, topaza*, p. 440, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg. : *D. (Clavus) fusconitens*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 208, fig. : *D. rugisculpta*, The Kowie; SOWERBY, t. c. p. 213, fig. : *D. (?) actinocycla*, p. 385, *gundlachi, ponciana, melonesiana, interpleura*, p. 386, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, figg. : n. spp.
- Glyphostoma tricolor*, Braz., figd.; HEDLEY, Rec. Austral. Mus. iv, p. 122.
- Mangelia desalesei*, Ten.-Woods, figd.; HEDLEY, t. c. p. 23 : *M. st.-galles, delicatula, alternata*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 369 : *M. elata*, Dall, *melanitica*, Bush, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, pp. 389, 390 : *M. obtusicaudata*, Sm., figd.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 444.
- Mangelia asarca*, p. 388, *agudillana*, p. 389, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, fig. : *M. eudeli*, Réunion; SOWERBY, J. Malac. viii, p. 102, fig. : *M. avarina*, Karachi, p. 441, *myrmecodes*, Charbar and Karachi, *phæa*, p. 442, *pulchripicta*, Persian Gulf, *terpnisima*, Gulf of Oman, p. 443; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg. : n. spp.
- Pleurotoma (Surcula) circumstricta*, p. 15, East Africa, (*S.*) *obliquicosta*, W. of Sumatra, (*Brachytoma*) *subsuturalis*, (*Leucosyrinx*) *crispulata*, p. 16, (*Subulata*) *bisinuata*, (*Drillia*) *elachystoma*, p. 17, (*Dolichotoma*) *fissa*, (*D.*) *bitorquata*, p. 18, off E. Africa, (*Pseudotoma* [err. typ. *Pseudomata*]) *chuni*, p. 19, W. of Sumatra; MARTENS, SB. Ges. naturf. Berlin 1901 : *P. (Surcula) nannodes*, (*Drillia*) *potti*, p. 208, (*D. ?*) *inchoata*, (*Clavus*) *siembenrocki*, p. 210, Red Sea; STURANY, Anz. Ak. Wiss. 1900 : n. spp.
- Terebra cognata*, Sm., *macandrewi*, Sm., *pelleyi*, Sm., figd.; MELVILL &

- STANDEN, P. Zool. Soc. London 1901, ii, p. 428: *T. limatula*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 383: *T. hedleyi*, n. n. for *Cingulina brazieri*, Angas, which belongs here; TATE, P. Linn. Soc. N. S. Wales xxvi, p. 214.
- Terebra juanica*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 382, fig.: *T. (Abretia) diversa*, South Africa; SMITH, J. Conch. x, p. 115, fig.: n. spp.

RACHIGLOSSA.

OLIVIDÆ, HARPIDÆ, MARGINELLIDÆ, VOLUTIDÆ, and MITRIDÆ.

- Ancilla petterdi*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 365.
- Ancillaria lanceolata*, off E. Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 23: n. sp.
- Cymbiola mangeri*, Falkland Is.; PRESTON, P. Malac. Soc. London iv, p. 237, fig.: n. sp.
- Harpa*, anatomy; BERGH (40).
- Marginella lævigata*, Braz., of which *valida*, Watson, may be a synonym, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 123: Several Tasmanian species figd., with *M. pumilio*, n. n. for *minutissima*, Ten.-Woods nec Michelin; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 362-364: *M. burnupi*, note on; SMITH, J. Conch. x, p. 114.
- Marginella gennesi*, Djibouti; FISCHER, J. Conchyl. xlix, p. 99, fig.: *M. algoensis*, South Africa; SMITH, J. Conch. x, p. 114, fig.: *M. evadne*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 393, fig.: *M. princeps*, hab. unknown; SOWERBY, P. Malac. Soc. London iv, p. 212, fig.: *M. (Cryptospira) mabella*, Arabian Sea; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 425, fig.: n. spp.
- Mitra zonata*, anatomy, &c.; VAYSSIÈRE, J. Conchyl. xlix, p. 77.
- Mitra (Costellaria) hizenensis*, p. 386, (*C.*) *vanattai*, p. 387, Japan; PILSBRY, P. Ac. Philad. 1901, figg.: *M. kowieensis*, The Kowie; SOWERBY, P. Malac. Soc. London iv, p. 212, fig.: *M. (Cancilla) talage*, p. 419, Gulf of Oman, (*Turricula*) *caliendrum*, p. 420, Persian Gulf, (*Costellaria*) *malcolmensis*, Persian Gulf and Gulf of Oman, p. 421, (*C.*) *psithea*, p. 422, (*Pusia*) *blanfordi*, p. 423, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: n. spp.
- Oliva caribacensis*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 391, fig.: n. sp.
- Olivella jaspidea* var. *rotunda*, Dall, is a species; DALL & SIMPSON, t. c. p. 392.
- Turris scalariformis*, Ten.-Woods, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 361.
- Volutidæ* of South Africa; SMITH, P. Malac. Soc. London iv, p. 231: *V. mamilla*, Gray, note on with fig.; DAUTZENBERG, J. Conchyl. xlix, p. 10: *V. roadknightæ*, note on; BALDWIN-SPENCER, P. Malac. Soc. London iv, p. 184: *V. beaulti*, Fisch. & Bern., note on with fig.; SYKES, J. Malac. viii, p. 108, fig.: *V. smithi*, n. n. for *Voluta uniplicata*, G. B. Sby., non præocc.; SOWERBY, Ann. Nat. Hist. viii, p. 161.
- Voluta (Alcithoe) ponsonbyi*, p. 233, *V. (Lyria) queketti*, p. 234, South Africa; SMITH, P. Malac. Soc. London iv, figg.: n. spp.

FASCIOLARIIDÆ, TURBINELLIDÆ, BUCCINIDÆ, NASSIDÆ,

COLUMBELLIDÆ, MURICIDÆ and CORALLIOPHILIDÆ.

- †*Acamptochetus*, n. gen., type *Murex mitraformis*, Br., Pliocene; COSS-MANN (123), p. 123.

- Æsopus urania*, Mekran Coast; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 407, fig.: n. sp.
- + *Amplonipho*, n. subgen. of *Parvisipho*, type *Buccinum rottai*, Baudon, Eocene; COSSMANN (123), p. 106.
- Anentome*, n. n. for *Canidia*, Adams nec Thoma. nec Holmgr.; COSSMANN (123), p. 200.
- Atilia longicauda*, n. n. for *Atilia subulata*, Duclos nec Brocchi; COSSMANN (123), p. 245.
- Atilinae*, n. subfam. of *Columbellidae*, for *Atilia* and *Æsopus*; COSSMANN (123), p. 229.
- Austrofusus appressus*, S.W. Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 21: n. sp.
- + *Bartonina*, n. gen., type *Buccinum canaliculatum*, Sby., Eocene; COSSMANN (123), p. 121.
- + *Belophos*, n. gen., type *Bela woodsi*, Tate, Eocene; COSSMANN (123), p. 162.
- Buccinida*, review of genera and sections; COSSMANN (123).
- Buccinopsis*, Deshayes, renamed *Coptaxis*, q. v.
- Buccinum hirasei*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 391, fig.: n. sp.
- Canidia*, Adams, renamed *Anentome*, q. v.
- Cantharus eburneus, kingicola*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 357.
- Chrysodomidae*, review of genera and sections; COSSMANN (123).
- Chrysodomus intersculptus*, n. var.; PILSBRY, P. Ac. Philad. 1901, pp. 197, 391: *C. pericochlion*, figd.; PILSBRY, t. c. p. 391.
- Columbellidae*, review of genera and sections; COSSMANN (123).
- Columbella*, species described by Brazier from 'Chevert' Expedition figd.; HEDLEY, Rec. Austral. Mus. iv, pp. 123 & 124: *C. saccharata*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 366: *C. albinodulosa*, Gask, p. 101, *fauroti*, Jouss., p. 102, figd.; FISCHER, J. Conchyl. xlix: *C. polymyxa*, n. n. for *C. misera*, Dunker nec Sby.; PILSBRY, P. Ac. Philad. 1901, p. 196 [is only a var. of *misera*, Sby.; PILSBRY, t. c. p. 390]: *C. misera*, Sby., of which *californica*, Rve., is a var., figd. with notes; PILSBRY, t. c. pp. 389 & 390: *C. blanda*, Sby., n. var.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 403.
- Columbella (Mitrella) agnesiana*, Persian Gulf and Gulf of Oman, p. 401, (*M. alizona*, Persian Gulf, p. 402, (*M. astolensis*, Mekran Coast, p. 403, (*M. nomadica*, p. 404, (*Seminella melitoma*, (*S. phaula*, p. 405, (*S. selasphora*, (*S. townsendi*, p. 406, Karachi; MELVILL & STANDEN, t. c. figg.: *C. (Astyris) lightfooti*, (*Anachis burnupi*, South Africa; SMITH, J. Conch. x, p. 112, figg.: *C. (Anachis) calliglypta*, (*Astyris perpicta*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 405, figg.: *C. (Mitrella) erythraensis*, p. 208, (*M. nomanensis*, p. 209, Red Sea; STURANY, Anz. Ak. Wiss. 1900: n. spp.
- + *Coptaxis*, n. n. for *Buccinopsis*, Desh. nec Conrad; COSSMANN (123), p. 226.
- Coralliophila rubrococcinea*, Persian Gulf; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 401, fig.: n. sp.
- Cyllene lactea*, Ad. & Ang., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 19.
- Donovania fenestrata*, figd.; TATE & MAY, t. c. p. 372.
- Dorsaninae*, n. subfam. of *Nassidae* for *Dorsanum* and other genera; COSSMANN (123), p. 197.
- Euthria clarkii*, Ten. Woods, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 726: *E. eburnea*, Sby., is a synonym of *Peristernia leucothea*, Melvill; SMITH, J. Conch. x, p. 110.
- Euthria hokkaidoensis*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 389, fig.: *E. queketti*, South Africa; SMITH, J. Conch. x, p. 110, fig.: n. sp.

- †*Euthriofusus*, n. gen., type *Fusus burdigalensis*, Bast., Miocene; COSSMANN (123), p. 27.
- Fasciolaria reevei*, Jonas, is a subspecies of *F. gigantea*; PILSBRY, P. Ac. Philad. 1901, p. 552.
- Fusidae*, review of genera and sections; COSSMANN (123).
- †*Fusoides*, n. gen., type *F. crassistriata*, n. sp., from the Hachauer beds; REIS, Geognost. Jahresh. ix, p. 98.
- Fusus* (?) *subangulatus*, p. 21, (?) *retiarius*, off E. Africa, (?) *retiarius*, W. of Sumatra, p. 22; MARTENS, SB. Ges. naturf. Berlin 1901: *F. bifrons*, Red Sea; STURANY, Anz. Ak. Wiss. 1900, p. 197: n. spp.
- †*Goniptyxis*, n. gen., type *G. nassaformis*, COSSIN. & PISS., Eocene; COSSMANN (123), p. 114.
- †*Holzapfelia*, n. gen., type *Latirus devalquei*, Holz., Senonian; COSSMANN (123), p. 67.
- Liomorus nassula*, Bering Sea; DALL, Nautilus xv, p. 89: n. sp.
- Murex eximius*, Braz., equals *aduncospinosus*, with fig. of *confusus*, Braz.; HEDLEY, Rec. Austral. Mus. iv, p. 123: *M. micromeris*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 408: *M. umbilicatus*, Ten.-Woods, is a var. of *M. octogonus*, Q. & G.; SUTER, J. Malac. viii, p. 61.
- Murex fallax*, South Africa; SMITH, J. Conch. x, p. 113, fig.: n. sp.
- Nassidae*, review of genera and sections; COSSMANN (123).
- Nassa* (*Hima*) *frederici*, nom. nov. for *N. townsendi*, Melvill nec Dall; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 413.
- Nassa tingitana*, Morocco; PALLARY, J. Conchyl. xlix, p. 226: *N. cebuensis*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 208, fig.: *N. (Alectryon) collatitia*, p. 409, Mekran Coast, (*A.*) *eranea*, Persian Gulf, (*A.*) *idyllia*, Gulf of Oman, p. 411, (*Niotha*) *angriensis*, Arabian Sea, p. 412, *sturtiana*, Gulf of Oman, p. 413; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: *N. thaumasia*, p. 198, *steindachneri*, *sesta*, p. 199, *munda*, *lathraia*, *stiphra*, p. 200, *sporadica*, p. 201, Red Sea; STURANY, Anz. Ak. Wiss. 1900: n. spp.
- Nassarina metabrunnea*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 401, fig.: n. sp.
- Peridipsaccus*, n. sect. of *Latrunculus*, type *L. mollianus*, Chemn.; ROVERETO (486), p. 168.
- Peristernia ustulata*, n. var.; PILSBRY, P. Ac. Philad. 1901, pp. 197, 390.
- †*Petrafraxia*, n. subgen. of *Pyramitira*, type *Fusus keneni*, COSSM. & L., Oligocene; COSSMANN (123), p. 127.
- Phos tenuicostatus*, Ten.-Woods, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 358.
- Phos oxyglyptus*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 401, fig.: *P. gladysiae*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 416, fig.: *P. nitens*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 208, fig.: n. spp.
- Pisania delicatula*, Bird Island; SOWERBY, J. Malac. viii, p. 101, fig.: n. sp.
- †*Pseudolathyrus*, COSSMANN, renamed *Streptolathyrus*, q. v.
- Purpura lapillus*, L., on a monograph by STRÖM; ROBERT (477).
- Pyramitiridae*, n. fam. for *Pyramitira* and other genera; COSSMANN (123), p. 124.
- Sistrum indigoferum*, Aden; MELVILL, Ann. Nat. Hist. vii, p. 551, fig.: n. sp.
- Streptochetinae*, n. subfam. of *Fusidae*, for *Streptochetus* and other genera; COSSMANN (123), p. 5.
- †*Streptolathyrus*, n. n. for *Pseudolathyrus*, COSSM. nec Bell; COSSMANN (123), p. 31.
- †*Streptopelma*, n. subgen. of *Streptosiphon*, type *Peristernia lintea*, Tate, Eocene; COSSMANN (123), p. 74.

- Strepturidae*, n. fam. for *Strepsidura* and other genera ; COSSMANN (123), p. 130.
- Strombina*, Mörh, renamed *Strombocolumbus*, q. v.
- Strombocolumbus*, n. n. for *Strombina*, Mörh nec Bronn ; COSSMANN (123), p. 241.
- Tritonidea natalensis*, South Africa ; SMITH, J. Conch. x, p. 111, fig.: *T. submenkeana*, Japan ; PILSBRY, P. Ac. Philad. 1901, p. 387, fig.: n. spp.
- †*Tritonoatractus*, n. subgen. of *Ptychatractus*, type *Fusus pearlensis*, Aldr., Eocene ; COSSMANN (123), p. 54.
- Trophon brasieri*, figd. ; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 726.
- Trophon kowieensis*, The Kowie ; SOWERBY, P. Malac. Soc. London iv, p. 212, fig.: n. sp.
- Truncarinæ*, n. subfam. of *Nassidae* for *Ilyanassa* and other genera ; COSSMANN (123), p. 197.
- Tudiculina*, n. subfam. of *Turbinellidae* for *Tudicula* and other genera ; COSSMANN (123), p. 60.
- Turbinellidae*, review of genera and sections ; COSSMANN (123).
- Turbofusula*, n. sect. of *Turbinella*, type *T. fusus*, Sby. ; ROVERETO (486), p. 169.
- †*Turricolumbus*, n. subgen. of *Anachis*, type *Columbella crebricostata*, T. Woods, Eocene ; COSSMANN (123), p. 239.
- †*Varicosipho*, n. subgen. of *Parvisipho*, type *Sipho labronus*, Tate, Eocene ; COSSMANN (123), p. 107.

TÆNIOGLOSSA.

CASSIDIDÆ, CYPRÆIDÆ, and STROMBIDÆ.

- Cassia bituberculosa*, off E. Africa ; MARTENS, SB. Ges. naturf. Berlin 1901, p. 23 : n. sp.
- Cypræa exusta* is probably a var. of *C. talpa* ; SYKES, J. Malac. viii, p. 109, fig.: *C. minoridens*, n. n. for *C. microdon*, Auct. nec Gray ; MELVILL, J. Conch. x, p. 119 : *C. chrysalis*, Kien., is a synonym of *C. microdon*, Gray ; MELVILL, t. c. p. 117.
- Erato bimaculata*, figd. ; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 375.
- Radius gracillimus*, South Africa ; SMITH, J. Conch. x, p. 107, fig.: n. sp.
- Strombus beluchiensis*, nom. emend. for *S. belutschensis* ; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 380, fig.
- Trivia paucilirata*, Sby., comes from Sarasota Bay ; BUTTON, Nautilus xiv, p. 144.

CERITHIIDÆ, TRICHOTROPIDIDÆ, VERMETIDÆ, TURRITELLIDÆ, and CÆCIDÆ.

- Bitium minimum*, Ten.-Woods, figd. ; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 722 : *B. torresense*, Melv. & Stand., equals *elegantissimum*, Hedley ; HEDLEY, Rec. Austral. Mus. iv, p. 127.
- Bitium atramentarium*, Karachi ; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 375, fig.: *B. (Elachista) californicum*, California ; DALL & BARTSCH, Nautilus xv, p. 58 : *B. chrysomallum*, Aden ; MELVILL, Ann. Nat. Hist. vii, p. 553, fig.: *B. ragusianum* (Brusina MS.), Corsica ; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 30 : n. spp.
- Cæcum*, monograph commenced ; CLESSIN in MARTINI & CHEMNITZ (348).

- Cerithiopsis turbonilloides*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 385.
- Cerithiopsis pupa*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 424, fig.: n. sp.
- Cerithium clypeomorus*, Jouss., figd.; FISCHER, J. Conchyl. xlix, p. 112: *C. abbreviatum*, *bicanaliferum*, Braz., figd.; BRAZIER, Rec. Austral. Mus. iv, pp. 126 & 127.
- Cerithium shoplandi*, Aden; MELVILL, Ann. Nat. Hist. vii, p. 553, fig.: *C. oscitans*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 211, fig.: *C. rufonodulosum*, South Africa; SMITH, J. Conch. x, p. 108, fig.: *C. chemnitzianum*, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 393, fig.: *C. triviale* (Monts. MS.), p. 20, *tortuosum* (Monts. MS.), p. 21, *compositum* (Monts. MS.), p. 22, *payraudeaui* (Monts. MS.), p. 25, *requieni*, *palustre* (Monts. MS.), p. 26, Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii: n. spp.
- Clava*, Martyn, should be used in place of *Vertagus*; PILSBRY, P. Ac. Philad. 1901, p. 303.
- Elachista*, Dall, n. sect. of *Bittium*, type *B. cerithioides*, Dall; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 427.
- Mathilda rosea*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 721, fig.: *M. gracillima*, p. 378, *emitampis*, p. 379, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: n. spp.
- Potamides californica*, mode of crawling; WILLIAMSON, Nautilus xv, p. 82.
- Separatista tricarinata* (equals *separitista*, Dillw.), *gracilentia*, Braz., figd.; HEDLEY, Rec. Austral. Mus. iv, p. 126.
- Siliquaria*, monograph; CLESSIN in MARTINI & CHEMNITZ (348).
- Thylacodes caperatus*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 377.
- Trichotropis torcularis*, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 22.
- Trichotropis townsendi*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 360, fig.: n. sp.
- Triforis tasmanica*, *fasciata*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 388: *T. melanura*, C. B. Ad., *samanae*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 423.
- Triforis picturatus*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 210, fig.: *T. idoneus*, Persian Gulf; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 376, fig.: n. spp.
- Turritella atkinsoni*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 378: *T. fultoni*, Melv., figd.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 378.

PSEUDOMELANIIDÆ, MELANIIDÆ, PLEUROCERIDÆ, LITTORINIDÆ,
and FOSSARIDÆ.

- Echinella cumingi*, n. var.; PILSBRY, P. Ac. Philad. 1901, pp. 198, 394.
- Fossarus bulimoides*, *minuta*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 390.
- Fossarus capensis*, South Africa; PILSBRY, P. Ac. Philad. 1901, p. 190, fig.: n. sp.
- Horea*, Smith, is a synonym of *Lechaptosia*, Ancey; ANCEY, J. Conchyl. xlix, p. 224.
- Littorina*, notes on shell and radula of North European forms; JOHANSEN (271).
- Melania liebrechtsi*, Congo Free State; DAUTZENBERG, Ann. Soc. malac. Belgique xxxvi, p. 4, fig.: n. sp.
- Melanopsis etrusca*, Villa, animal described; ISSEL (266).

- Melanopsis mourebeyensis*, Morocco; PALLARY, J. Conchyl. xlix, p. 228: n. sp.
Messerschiza cannot stand as genus, and type is probably a synonym of *Angitrema armigera*, Say; HINKLEY, Nautilus xv, p. 5.
Reymondia foai, Tanganyika; MABILLE, Bull. Soc. Philom. iii, p. 57: n. sp.
Rhinomelania, n. subgen. of *Semisinus* for *S. zenkeri*, n. sp.; MARTENS, S.B. Ges. naturf. Berlin 1901, p. 26.
Semisinus (*Rhinomelania*, n. sub-gen.) *zenkeri*, Cameroons; MARTENS, t. c. p. 26: n. sp.

SOLARIIDÆ, LITIOPIDÆ, RISSOIDÆ, HYDROBIIDÆ, VIVIPARIDÆ,
 AMPULLARIIDÆ, and ASSIMINEIDÆ.

- Alaba tervaricosa*, C. B. Ad., of which *melanura*, Ad., is a synonym, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 431.
Alvania arguta (Monts. MS.), Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 49: n. sp.
Amnicola letsoni, New York; Nautilus xiv, p. 113: *A. vulcani*, *stolli*, Guatemala; MARTENS, Biol. Centr.-Amer. p. 645, figg.: n. spp.
Ampullaria winkleyi, Burma; PILSBRY, P. Ac. Philad. 1901, p. 189, fig.: n. sp.
Argyropeza, n. gen. of *Litiopidæ*, p. 371, type *A. divina*, n. sp., Gulf of Oman, p. 372; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, fig.
Assiminea angustata, Japan; PILSBRY, P. Ac. Philad. 1901, p. 396; *A. quintana*, *foai*, Tanganyika; MABILLE, Bull. Soc. Philom. iii, p. 56: n. spp.
Bithynia striatula, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 405.
Bythinella obtusa, Lea, note on species and synonymy; WALKER, Nautilus xv, p. 30.
Cleopatra bulimoides, animal figd. with n. var.; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, Bull. p. lv: *C. johnstoni*, Smith, note on; DAUTZENBERG, t. c. p. 6.
Fenella tanyospira, Karachi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 370, fig.: n. sp.
Hydrobia caledonensis, Chaper, is a synonym of *Tomichia ventricosa*, Sby.; ANCEY, J. Conchyl. xlix, p. 225.
Idiopoma, n. subgen. of *Vivipara*, type *V. hensadensis*, n. sp.; PILSBRY, P. Ac. Philad. 1901, p. 189.
Iravadia australis, Queensland; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 727, fig.: n. sp.
Lamistes, notes on several African species and on the animal, with n. var. of *L. lybicus*, Morel.; DUPUIS & PUTZEYS (171).
Omalaxis exquisita, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 432, fig.: n. sp.
Paludestrina taylori, Cheshire; SMITH, Ann. Nat. Hist. vii, p. 192: n. sp.
Paludina vivipara, anatomy; TÖNNIGES (600).
Petterdiana thaanumi, Pils., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 727.
Planorbis albertensis, n. gen. and sp., Lake Albert Edward Nyanza; MOORE, 'To the Mountains of the Moon,' p. 260. [Both genus and species are undescribed.]
Pomatiopsis hirasei is a synonym of *Blanfordia bensoni*; PILSBRY, Ann. Nat. Hist. viii, p. 5.
Rissoia, several Tasmanian species figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 391-394.

- Rissoia crawfordi*, South Africa; SMITH, J. Conch. x, p. 107, fig.: *R. (Alvania) epina*, (*Thapsia*) *portoricana*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 433, figg.: *R. (Apicularia) charope*, Gulf of Oman, p. 365, (*Manzonina*) *petronella*, Karachi, (*Alvania*) *alveata*, off Bombay, p. 366; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: n. spp.
- Rissoina*, species described by Brazier figd., with note that *semisculpta*, Tate, *honoluluensis*, Watson, *mercurialis*, Watson, are synonyms of *efficata*, *pulchella*, and *cardinalis*; HEDLEY, Rec. Austral. Mus. iv, p. 127.
- Rissoina sceptrum-regis*, p. 367, (*Rissolina*) *pseudo-scalaris*, Gulf of Oman, (*Phosinella*) *paschalis*, Karachi, p. 368; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, figg.: n. spp.
- Rissoina buliminoides consobrina*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 394.
- Stenothyra australis*, Queensland; HEDLEY, op. cit. xxv, p. 724, fig.: n. sp.
- Synnotopsis foai*, Tanganyika; MABILLE, Bull. Soc. Philom. iii, p. 56: n. sp.
- Vivipara (Idiopoma)*, n. subgen.) *henzadensis*, Burma; PILSBRY, P. Ac. Philad. 1901, p. 188, fig.: n. sp.

CYCLOPHORIDÆ and CYCLOSTOMATIDÆ.

- On the systematic position of several operculate genera; THIELE (592).
- Adamsiella jarvisi*, Jamaica; HENDERSON, Nautilus xv, p. 49, fig.: n. sp.
- Alycaeus fultoni*, n. var.; FULTON, Ann. Nat. Hist. viii, p. 242.
- Alycaeus satrumana*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 548: *A. tanegashimæ*, Japan; PILSBRY, t. c. p. 562: n. spp.
- Aperostoma giganteum*, Rve., note on; SYKES, J. Malac. viii, p. 105, fig.
- Aperostoma confusum*, Guatemala; SYKES, t. c. p. 106, fig.: n. sp.
- Austrocyclus* is a synonym of *Aferulus*; ANCEY, J. Conchyl. xlix, p. 145.
- Ceratodiscus*, n. gen. for *C. solutus*, n. sp., Haiti; SIMPSON & HENDERSON, Nautilus xv, p. 73, fig.
- Ctenopoma*, Pfr., renamed *Rhytidopoma*, q. v.
- Cyclophorus dohertyi*, Fulton, is a synonym of *C. sericatus*, Ancey; ANCEY, J. Conchyl. xlix, p. 145: *C. intermedius*, Mtns., n. var.; DUPUIS & PUTZEYS, Ann. Soc. malac. Belgique xxxvi, p. xli, fig.: *C. turgidus*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 549.
- Cyclophorus hirasei*, Japan; PILSBRY, t. c. p. 348: *C. (Litostylus) fruhstorferi*, (*Eucyclophorus*) *polystictus*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 80: *C. (Litostylus) ignilabris*, Tonkin; MOELLENDORFF, t. c. p. 117: n. spp.
- Cyclostoma sikora*, Madagascar; FULTON, J. Malac. viii, p. 104, fig.: n. sp.
- Cyclotus hirasei*, Loo Choo Is.; PILSBRY, Nautilus xv, p. 22: n. sp.
- Diadema carolinarum*, Mildff., is a synonym of *D. angulosa*, Ancey; ANCEY, J. Conchyl. xlix, p. 147.
- Diplommatina (Sinica) minutissima*, Japan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 44 [equals *pusilla* var. *omiensis*; PILSBRY, Ann. Nat. Hist. viii, p. 8]: *D. (Sinica) scolops*, (*S.*) *fulva*, Tonkin; MOELLENDORFF, t. c. p. 118: *D. onyx*, *plecta*, *sykesi*, p. 244, N. Borneo, *tenuilabiata*, Banguay I., *oviformis*, *regularis*, India, p. 245; FULTON, Ann. Nat. Hist. viii: *D. insularum*, Loo Choo Is., p. 22, *cassa*, Japan, p. 23; PILSBRY, Nautilus xv, p. 22: *D. yakushimæ*, Loo Choo Is.; PILSBRY, t. c. p. 64: *D. tanegashimæ*, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 497: *D. turris*, p. 350, *saginata*, *oshimæ*, p. 351, Japan, *luchuana*, Loo Choo Is., *septentrionalis*, Japan, p. 352; PILSBRY, t. c.: n. spp.

- Heteropoma tonkingense*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 119: n. sp.
- Hijabia* is a synonym of *Aferulus*; ANCEY, J. Conchyl. xlix, p. 145.
- Lagochilus hypselospirum*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 79: *L. insulare*, p. 116, *diplotoma*, p. 117, Tonkin; MOELLENDORFF, t. c. : n. spp.
- Megalomastoma croceum*, Gmel., figd. with n. var.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 434.
- Murdochia*, n. sect. of *Lagochilus* for the new Zealand species; ANCEY, J. Conchyl. xlix, p. 24 [is a synonym of *Cytora*, Kob. & Mlldff; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 127: SYKES, J. Malac. viii, p. 109].
- Neocyclus* is a synonym of *Aperostoma*; SYKES, J. Malac. viii, p. 108.
- Neocyclus colombiensis, caucaensis*, Colombia; DA COSTA, P. Malac. Soc. London iv, p. 240, figg. : n. spp.
- Omphalotropis japonicus*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 405: n. sp.
- Opisthostoma concinnum*, p. 242, *simplex*, N. Borneo, *smithi*, p. 243, Banguey I.; FULTON, Ann. Nat. Hist. viii : n. spp.
- Platyrhaphis leucacme*, Tonkin; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 80: n. sp.
- Pseudopomatias fulvus*, Tonkin; MOELLENDORFF, t. c. p. 81: n. sp.
- Pupina (Tylotechus) solidula*, Annam; MOELLENDORFF, t. c. p. 81: n. sp.
- Pupinella fruhstorferi* may equal *P. rufa*; PILSBRY, Ann. Nat. Hist. viii, p. 6: *P. rufa*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 497.
- Pupinella oshima*, Japan; PILSBRY, t. c. p. 349: *P. funatoi*, Loo Choo Is.; PILSBRY, t. c. p. 497: n. spp.
- Rhytidopoma*, n. n. for *Ctenopoma*, Pfr. nec Peters; SYKES, J. Malac. viii, p. 60.
- Spiropoma nakadai*, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 496: n. sp.

TRUNCATELLIDÆ.

- Cecina manchurica*, Ad., figd.; SYKES, J. Malac. viii, p. 60.
- Tomichia ventricosa*, Sby., is the proper name for *Hydrobia caledonensis*, Chaper; ANCEY, J. Conchyl. xlix, p. 225.
- Truncatella caribæensis*, Sby., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 436.
- Truncatella hiuseensis*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 615: n. sp.

CAPULIDÆ, ADEORBIIDÆ, and NATICIDÆ.

- Adeorbis placens*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 373, fig.: n. sp.
- Calyptrea edgariana*, Melv., figd.; MELVILL, Ann. Nat. Hist. vii, p. 556.
- Capulus hungaricus*, nervous system; LACAZE-DUTHIERS (311).
- Crepidula*, the individuality of the germ nuclei during the cleavage of the egg; CONKLEN (120).
- Natica subcostata*, Ten.-Woods, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 22.
- Natica rodatzki*, Red Sea; SCHEPMAN, Notes Leyden Mus. xxii, p. 188, fig.: *N. (Eunatica) tranquilla*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 359, fig.: *N. (Eunatica) tela-araneæ*, Aden; MELVILL, Ann. Nat. Hist. vii, p. 552, fig. : n. spp.
- Polinices nubila*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm.

1900, i, p. 439: *P. tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 375.

Vanikoro expansa, North-West Australia; SOWERBY, J. Malac. viii, p. 102, fig.: n. sp.

PTENOGLOSSA.

SCALIDÆ and IANTHINIDÆ.

Acis calotropis, enilda, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 357, figg.: n. spp.

Constantia multilineata, China; CLESSIN in MARTINI & CHEMNITZ (348), p. 221, fig.: n. sp.

Crosseia cancellata, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 380.

Ianthina payraudeaui, Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 73: n. sp.

Scala millecostata, Pease, note on; SMITH, J. Conch. x, p. 109, fig.

Scala humerosa, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 210, fig.:

S. eulita, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900,

i, p. 412, fig.: *S. (Clathrus) gloriola*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 355, fig.: n. spp.

Scalaria minutula, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 379.

Scalaria mediterranea, Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 32: n. sp.

GYMNOGLOSSA.

EULIMIDÆ and PYRAMIDELLIDÆ.

†*Böhmia*, n. n. for *Ephyra*, Böhm, præocc.; COSSMANN, Rev. paleozool. vi, p. 22.

Cingulina brazieri, Angas, is a *Terebra*, q. v.: *C. torcularis*, Ten.-Woods, is a *Trichotropis*, q. v.

Cingulina trilineata, Siam, p. 222, *subulata*, China, *japonica*, Japan, p. 223; CLESSIN in MARTINI & CHEMNITZ (348), figg.: n. spp.

Dunkeria sumatrensis, Sumatra; CLESSIN in MARTINI & CHEMNITZ (348), p. 207, fig.: n. sp.

Elusa livida, crassicostata, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 210, figg.: n. spp.

Entocolax schiemenzii in *Chirodota pisanii* from S. coast of Chile; VOIGT, Zool. Anz. xxiv, p. 285: n. sp.

†*Ephyra*, n. gen. for *E. exilis*, n. sp. from the Pereiros beds; BÖHM, Zeitschr. Deutsch. geol. Ges. liii, p. 223: genus renamed *Böhmia*, q. v.

Eulimidæ, notes on British species; MARSHALL, J. Conch. x, p. 122: *E. apheles, inflata, mayii*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 380 & 381: *E. australiasica*, Melv. & Stand., equals *amabilis*, Braz., with fig. of *nitens*, Braz.; HEDLEY, Rec. Austral. Mus. iv, p. 125.

Eulima (Leiostraca) patula, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 413, fig.: *E. translucida, algoensis*, South Africa; SMITH, J. Conch. x, p. 109, figg.: *E. submarginata*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 209, fig.: *E. styliferoides*, Karachi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 388, fig.: *E. anceps*, Ireland; MARSHALL, J. Conch. x, p. 124: *E. dunckeriana*, Japan, p. 395, *luchuana*, Loo Choo Is., p. 396; PILSBRY, P. Ac. Philad. 1901, figg.: n. spp.

- Eulimella aurantiaca, turrita, micra*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 383 & 384.
- Jordanella*, Chaster, renamed *Jordanula*, q. v.
- Jordanula*, n. n. for *Jordanella*, Chaster, præocc.; CHASTER, J. Conch. x, p. 8.
- Monoptygma enosima*, Japan; CLESSIN in MARTINI & CHEMNITZ (348), p. 219, fig.: n. sp.
- Niso venosa*, Shy., n. var.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 389.
- Niso portoricensis*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 414, fig.: n. sp.
- Oda*, Monta. MS., apparently n. gen. for *Odostomia dolioliformis*, Jeff.; CHASTER, J. Conch. x, p. 8.
- Odontostomia deplexa, tasmanica, suprasculpta*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 383: *O. compta, affinis, polita, parvula*, Brazier, are all one species, with fig. of that and *clara*, Braz.; HEDLEY, Rec. Austral. Mus. iv, p. 125.
- Odostomia*, variation in; WINKLEY, Nautilus xiv, p. 126.
- Odostomia lavertinae*, South Africa; SMITH, J. Conch. x, p. 108, fig.: *O. litiopina*, Gulf of Oman, *major*, Karachi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 395, figg.: *O. (Pyrgulina) robusta*, The Kowie; SOWERBY, P. Malac. Soc. London iv, p. 213, fig.: n. spp.
- Pseudorissoina tasmanica*, Ten-Woods, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 384.
- Pyramidellidae*, monograph continued; CLESSIN in MARTINI & CHEMNITZ (348).
- Pyrgulina intersculpta*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 209, fig.: n. sp.
- Spiralina*, Chaster, renamed *Spiralinella*, q. v.
- Spiralinella*, n. n. for *Spiralina*, Chaster, præocc.; CHASTER, J. Conch. x, p. 8.
- Styliferidae*, monograph commenced; CLESSIN in MARTINI & CHEMNITZ (348): *Stylifer petterdi*, Tate & May, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 729.
- Stylifer kochianus*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 209, fig.: n. sp.
- Subularia piperata*, Cebu; SOWERBY, t. c. p. 209, fig.: n. sp.
- Syrnola pulchra*, Braz., figd.; HEDLEY, Rec. Austral. Mus. iv, p. 125: *S. petterdi, micra, harrissoni*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 382.
- Syrnola bacillum*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 394, fig.: *S. mekranica*, Mekran Coast; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 390, fig.: n. spp.
- Turbonilla cheverti*, n. n. for *eximia*, Braz. nec A. Ad., with figg. of species described by Brazier, of which *darnleyensis* and *confusa* are same as *dipsycha* and *rhabdoides* of Watson; HEDLEY, Rec. Austral. Mus. iv, pp. 124 & 125.
- Turbonilla portoricana*, p. 414, *insularis*, p. 415, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, figg.: *T. bathyraphe*, The Kowie; SOWERBY, P. Malac. Soc. London iv, p. 212, fig.: *T. varicifera*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 198, 395, fig.: *T. (Pyrgostelia) charbarensis*, Mekran Coast, *linjaica, stegastria*, Persian Gulf; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 393, figg.: n. spp.

SCUTIBRANCHIATA.

RHIPHODOGLOSSA.

DESPENIDÆ and HELICINIDÆ.

- Calopisma*, Crosse, is a synonym of *Tristramia*, Crosse; ANCEY, J. Conchyl. xlix, p. 148.
- Georissa japonica*, Japan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1901, p. 45 [equals *japonica*, Pils., 1900; PILSBRY, Ann. Nat. Hist. viii, p. 8]: *G. luchuana*, Loo Choo Is.; PILSBRY, Nautilus xv, p. 21 : n. spp.
- Helicina rufocallosa*, Ancey, figd.; SYKES, P. Malac. Soc. London iv, p. 260 : *H. reini*, n. var.; PILSBRY, Nautilus xiv, p. 128 : *H. subfusca*, Mke, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 447.
- Helicina yaeyamensis*, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 497 : *H. pelewensis*, Pelew Is.; SYKES, P. Malac. Soc. London iv, p. 260, fig.: *H. rollei*, Kangean Is.; SYKES, J. Malac. viii, p. 59, fig.: *H. osumiensis*, Japan; PILSBRY, Nautilus xiv, p. 127 : *H. leptalea*, Bolivia; ANCEY, Naturaliste 1901, p. 104 : n. spp.

NERITIDÆ, TURBINIDÆ, TROCHIDÆ, DELPHINULIDÆ, CYCLOSTREMATIDÆ and COCCULINIDÆ.

- Basilissa patula*, off E. Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 25 : n. sp.
- Callomphala globosa*, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 728, fig.: n. sp.
- Cantharidus badius*, Wood, and *peronii*, Phil., must give place to *eximius*, Perry, and *carinatus*, Perry; PILSBRY, Nautilus xv, p. 8 : *C. decoratus*, Phil., note on species and allies; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 19.
- Cantharidus (Phasianotrochus) hirasei, bisbalteatus*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 199, 398, figg. : n. spp.
- Chlorostoma argyrostomum*, n. var.; PILSBRY, t. c. p. 202.
- Clanculus microdon*, n. var.; PILSBRY, t. c. p. 200 : *C. philomenæ*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 401.
- Clanculus gennesi*, Djibouti; FISCHER, J. Conchyl. xlix, p. 123, fig.: *C. gemmulifer*, p. 200, *hizenensis*, p. 201, Japan; PILSBRY, P. Ac. Philad. 1901 [figd. at p. 398] : n. spp.
- Cocculina portoricensis*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 440, fig.: n. sp.
- Collonia josephi*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 400.
- Cyclostrema*, several Tasmanian species figd.; TATE & MAY, t. c. p. 397.
- Cyclostrema ocrinum*, Persian Gulf, *quadricarinatum*, Gulf of Oman; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 346, figg. : n. spp.
- Delphinula diplacostira*, Aden; MELVILL, Ann. Nat. Hist. vii, p. 554, fig.: n. sp.
- Diloma adelaidæ*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 405.
- Euchelus ruber*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 201 : *E. granosus*, Braz., figd.; HEDLEY, Rec. Austral. Mus. iv, p. 128.

- Gibbula legrandi*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 404.
- Gibbula beckeri*, The Kowie; SOWERBY, P. Malac. Soc. London iv, p. 213, fig.: n. sp.
- Leptothyra rubra*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 398.
- Liotia subquadrata, denilineata*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 398.
- Liotia venusta*, p. 17, *deveza*, p. 18, Torres Straits; HEDLEY, t. c. figg.: n. spp.
- Margarita aloysiisabaudiae*, Cape Flora, Franz Josef's Land; POLLONERA, Boll. Mus. Torino xvi, No. 392: *M. periomphalia*, S. Indian Ocean, (*Turricula*) *aethiopica*, off E. Africa; MARTENS, SB. Ges. naturf. Berlin 1901, p. 24: n. spp.
- Monilea astolensis*, Melv., n. n. for *M. astrolabensis*, Melv., nom. err.; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 349.
- Nerita helicinoides*, n. var.; PILSBRY, P. Ac. Philad. 1901, p. 397.
- Nerita martensiana*, Loo Choo Is.; PILSBRY, t. c. p. 397: n. sp.
- Neritina propinqua*, Mousson, *chrysocolla*, Gld., are respectively synonyms of *castanea* and *rivula*, Rousseau; ANCEY, J. Conchyl. xlix, pp. 222 & 223: *N. fluviatilis*, n. var.; LINDHOLM (320).
- Neritina mauretanica*, Algeria; PALLARY, C.R. Ass. France 1900, p. 734, fig.: n. sp.
- Phasianella elachista*, Melv., n. n. for *P. minima*, Melvill nec Philippi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 351.
- Solariella beckeri*, The Kowie; SOWERBY, P. Malac. Soc. London iv, p. 213, fig.: *S. illustris*, Red Sea; STURANY, Anz. Ak. Wiss. 1900, p. 211: n. spp.
- Teinostoma vesta*, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 18, fig.: n. sp.
- Trochida*, anatomy; PELSENER (419): Segmentation in; ROBERT (479): Spawn; ROBERT (478).

HALIOTIDÆ, PLEUROTOMARIIDÆ and FISSURELLIDÆ.

- Emarginula biangulata*, Cebu; SOWERBY, P. Malac. Soc. London iv p. 211, fig.: n. sp.
- Fissurella*, anatomy; PELSENER (419): *F. crucis*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 408.
- Glyphis fimbriata*, Dkr., is a good species; SMITH, J. Conch. x, p. 105.
- Glyphis spreta, elizabethæ*, South Africa; SMITH, t. c. p. 104, figg.: n. spp.
- Haliotis corrugata*, Gray, n. var.; ORCUTT, W. Amer. Scient. x, p. 31.
- Haliotis bonita, rosea*, California; ORCUTT, t. c. p. 30: n. spp.
- Lucapina crenulata*, animal; COCKERELL, Nautilus xv, p. 71.
- Macroschisma angustata*, Ad., is a synonym of *M. producta*; SMITH, J. Conch. x, p. 105.
- Parnophorus intermedius*, anatomy; TOBLER, Jena. Zeitschr. xxxvi, p. 229.
- Pleurotomaria*, Monograph; SCHMALZ in MARTINI & CHEMNITZ (348): Anatomy; HESCHELER (246); *P. beyrichii*, anatomy; WOODWARD, Quart. J. Micr. Sci. xlv, p. 215: Anatomy; BOUVIER & FISCHER (69, 70): *P. beyrichi*, note on rarity; CORT (122).
- Schismope tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 407: *S. pulchra*, Petterd, figd.; HEDLEY, op. cit. xxv, p. 726.
- Scissurella*, anatomy; PELSENER (419).
- Subemarginula yatesii*, California; DALL, Nautilus xiv, p. 125: n. sp.
- Zidora tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 410.

DOCOGLOSSA.

ACMÆIDÆ and PATELLIDÆ.

- Acmaeidae*, classification of; WILLCOX (655): *A. heroldi*, n. var.; PILSBRY, P. Ac. Philad. 1901, pp. 202, 398: *A. testudinalis*; some points in its anatomy; WILLCOX (656).
Acmaea roseoradiata, p. 106, *albonotata*, p. 107, South Africa; SMITH, J. Conch. x, figg. : n. spp.
Nacella tasmanica, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 411.
Patella lutchuana, Loo Choo Is.; PILSBRY, P. Ac. Philad. 1901, p. 202: *P. (?) decemcostata*, South Africa; SMITH, J. Conch. x, p. 106, fig. : n. spp.

III. SCAPHOPODA.

- Cadulus spretus*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 420.
Cadulus euloides, Gulf of Oman and Karachi; MELVILL & STANDEN, P. Zool. Soc. London 1901, ii, p. 459, fig.: n. sp.
Dentalium, anatomy; PELSENER (419): Species described by Brazier from 'Chevert' Expedition figd.; HEDLEY, Rec. Austral. Mus. iv, pp. 128 & 129: *D. weldianum*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 420: *D. taphrium*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 455.

IV. PELECYPODA.

- Hinge in Pelecypods; DALL (145).
 On the structure of the hinge; VEST (622).
 On the Crystalline style; MITRA (368).
 Development of heart and Bojanus' Organ; AHTING (2).
 HOMÆODONTA, n. n. for ISODONTA, Dall nec Buvignier (genus); COSSMANN, Rev. paleozool. v, p. 58.

SEPTIBRANCHIATA.

- Cuspidaria latesulcata, tasmanica*, Ten-Woods, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, pp. 20 & 21.
Cuspidaria steindachneri, p. 261, *dissociata*, p. 262, *brachyrhynchus*, p. 263, (*Cardiomya*) *potti*, p. 264, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, figg. : n. spp.
 †*Mioporomya*, n. subg. of *Poromya* for *M. taurinensis*, n. sp., Helvetian, Piedmont; SACCO (490), p. 140.
Pseudoneera, n. gen. for *P. thaumasia*, n. sp., Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 265, fig.

EULAMELLIBRANCHIATA.

ANATINACEA.

- Anatina impura*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 208, 402, fig. : n. sp.
 †*Ceromyella*, n. g. for *C. miotaurina*, n. sp., Helvetian, S. Europe; SACCO (490), p. 133.

- Gouldia tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 461.
Lyonsia intracta, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 261, fig.: n. sp.
Periploma micans, New South Wales; HEDLEY, Rec. Austral. Mus. iv, p. 25, fig.: n. sp.
 †*Rhombomya*, n. subg. of *Goniomya*, type *R. rhombifera*, Goldf.; SACCO (490), p. 133.
Philippina, Dall, n. sect. of *Lyonsia*, type *L. beana*, D'Orb.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 498.

PHOLADACEA.

- Gastrochana deshayesi*, p. 273, *periphora*, p. 274, *reinkaufi*, p. 275, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, figg.: n. spp.

MYACEA and CARDIACEA.

- Cardium peramabile* var. *tinctum*, Dall, is a good species, with n. var. of *C. serratum*; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, pp. 489 & 490.
Cardium (Papyridia) hungerfordi, Japan; SOWERBY, J. Malac. viii, p. 103, fig.: n. sp.
 †*Carnadia*, n. gen. for *C. punnonica*, n. sp., Trias, Hungary; BITTNER (46), p. 6.
 †*Hippuritida*, on the evolution of the group; TOUCAS (602).
Mya arenaria and *truncata*, notes on; JENSEN, Vid. Medd. 1900, p. 133: *M. arenaria*, life-history and culture; KELLOGG (281, 282).
Saxicavella sagrinata, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 472.
Solecurtus subcandidus, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 260, fig.: n. sp.
Solen, anatomy; BLOOMER (54).
Solen roseomaculatus, Japan; PILSBRY, P. Ac. Philad. 1901, p. 399, fig.: n. sp.
Sphenia antillensis, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 474, fig.: n. sp.

VENERACEA and TELLINACEA.

- Asaphis contraria*, Desh., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 731.
Chione hypopta, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 281, fig.: n. sp.
Circe insularis, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 487, fig.: n. sp.
Clementia vatheliti, Japan; MABILLE, Bull. Soc. Philom. iii, p. 57: n. sp.
 †*Craspedodon*, n. gen. for *C. hornigii*, n. sp., Trias, Hungary; BITTNER (46), p. 8.
Cumingia occatilla, Aden; MELVILL, Ann. Nat. Hist. vii, p. 555, fig.: n. sp.
Donax bertini, South Africa; PILSBRY, P. Ac. Philad. 1901, p. 189, fig.: *D. kiusiuensis*, Japan; PILSBRY, t. c. pp. 207, 400, fig.: *D. (Serrula) epularis*, Aden; MELVILL, Ann. Nat. Hist. vii, p. 554, fig.: n. s. p.

- Macoma brevisfrons*, Say, *tageliformis*, Dall, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, pp. 481 & 482.
- Macoma pseudomera*, Porto Rico; DALL & SIMPSON, t. c. p. 481, fig.: n. sp.
- +*Macomopsis*, n. subg. of *Tellina*, type *T. elliptica*, Brocchi; SACCO (490), p. 107.
- Meretrix dione*, L., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 485.
- Meretrix aresta*, p. 485, (*Transennella*) *culebrana*, p. 486, Porto Rico; DALL & SIMPSON, t. c. figg.: n. spp.
- Mulinia branneri*, Pernambuco: DALL, P. Washington Ac. iii, p. 145: n. sp.
- Petricola cyclus*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 204, 400, fig.: n. sp.
- Psammobia ferroensis*, note on; COCKERELL, J. Malac. viii, p. 88.
- +*Pseudoxyperas*, n. subg. of *Macra* for *P. proaspera*, n. sp., Helvetian, Piedmont; SACCO (490), p. 26.
- Raeta bracheon*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 266, fig.: n. sp.
- Strigilla carnaria*, L., *rombergi*, Mörch, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 482.
- +*Syndesmyella*, n. subg. of *Syndesmya* for *S. plioovoides*, n. sp., Pliocene, Piedmont; SACCO (490), p. 123.
- Tapes pullastra* and *geographicus* are the same species; MARSHALL, J. Conch. ix, p. 27: Are distinct; WOODWARD, t. c. p. 51.
- Tapes platyptycha*, Japan, p. 206, *phexax*, Loo Choo Is., p. 207; PILSBRY, P. Ac. Philad. 1901 [figd. at p. 400]: n. spp.
- Tellina candida*, Sby., is a synonym of *Macoma retrorsa*, Sby.; SMITH, J. Conch. x, p. 116.
- Tellina (Merisca) pristiformis*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 400, fig.: *T. siebenrocki*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 278, fig.: *T. (Phyllodina) persica*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 479, fig.: n. spp.
- Venus (Anomalocardia) malonei*, South Africa; VANATTA, P. Ac. Philad. 1901, p. 185, fig.: *V. hirasei*, Japan; PILSBRY, t. c. pp. 205, 400, fig.: n. sp.

SUBMYTILACEA.

- Lucinacea, synopsis of family; DALL (146).
- Alasmodonta marginata* and *truncata*, notes on; WHEELER, Nautilus xiv, p. 143; SIMPSON, op. cit. xv, p. 16; FOX, t. c. p. 47.
- Anodonta*, circulation in; WILLEM & MINNE (657).
- Axinopsis sericatus*, Cpтр., figd.; DALL, P. U. S. Mus. xxiii, p. 819.
- Axinopsis viridis*, W. America and Japan; DALL, t. c. pp. 791, 819, fig.: n. sp.
- Bellucina*, n. sect. of *Parvilucina* (q. v.), type *P. eucosmia*, Dall; DALL, t. c. p. 806.
- +*Bourdotia*, apparently n. sect. of *Divaricella*, type *Lucina bourdoti*, Cossm.; DALL, t. c. p. 814.
- Burtonia foat*, Tanganyika; MABILLE, Bull. Soc. Philom. iii, p. 58: n. sp.
- Callucina*, n. subgen. of *Phacoides*, type *Lucina radians*, Conrad; DALL, P. U. S. Mus. xxiii, p. 806.
- Cardita akabana*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 267, fig.: n. sp.
- Carditella*, some Tasmanian forms figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 434 & 435: *C. delta*, Tate & May, figd.; HEDLEY, Rec. Austral. Mus. iv, p. 23.

- Carditella elegantula*, Tasmania; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 463, fig.: n. sp.
- +*Cardiolucina*, n. subg. of *Lucina*, type *Cardium agassizi*, Micht.; SACCO (490), p. 89.
- Codakia mexicana*, n. n. for *Lucina pectinata*, Cptr. nec Gmelin; DALL, P. U. S. Mus. xxiii, pp. 801, 822: *C. pectinella*, C. B. Ad., figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 492.
- Codakia cubana*, Gulf of Mexico, pp. 799, 821, *portoricana*, Porto Rico, pp. 800, 822, *colpoica*, pp. 801, 821, *galapagana*, Galapagos, *chiquita*, Lower California, pp. 801, 823; DALL, P. U. S. Mus. xxiii, figg.: n. spp.
- Corbicula foai*, Tanganyika; MABILLE, Bull. Soc. Philom. iii, p. 58: *C. messageri*, Indo-China; BAVAY & DAUTZENBERG, J. Conchyl. xlix, p. 9, fig.: *C. sadoensis*, p. 406, *awajiensis*, p. 407, Japan; PILSBRY, P. Ac. Philad. 1901: *C. subtriangularis*, p. 223, *fulgida*, p. 224, Philippines (?); BULLEN, P. Malac. Soc. London iv, figg.: n. spp.
- Cyamium mactroides*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 433.
- Cyclas*, development; MEISENHEIMER (355, 357).
- Cypriniadea*, n. n. for *Cyprina*, Lam., nec *Cyprinus*, L.; ROVERETO (486), p. 96.
- Cyrenoida floridana*, Dall, figd.; DALL (146): *C. americana*, Morel, figd.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 494.
- Diplodonta tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 432.
- Diplodonta raveyensis*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 285, fig.: *D. notata*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 495: *D. (torelli)*, Jeff., var. ? *aleutica*, Bering Sea; DALL, P. U. S. Mus. xxiii, pp. 795, 820, fig.: n. spp.
- Divaricella parvula*, n. n. for *Lucina pisum*, Phil. nec Rve., &c.; DALL, P. U. S. Mus. xxiii, p. 815.
- Dreissensia polymorpha*, development; MEISENHEIMER (354, 356).
- Epilucina*, Dall, n. sect. of *Callucina* (q.v.), type *Lucina californica*, Conrad; DALL, P. U. S. Mus. xxiii, p. 806.
- Eulopia*, n. sect. of *Myrtæa*, type *Lucina sagrinata*, Dall; DALL, t. c. p. 804.
- Jugonia orbiculata*, n. vars.; DALL, t. c. p. 800.
- Legrandina*, n. gen. for *L. bernardi*, n. sp., Tasmania; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, pp. 433, 463, fig.
- +*Loparia*, n. gen. [of *Astartida*?] for *L. katzeri*, n. sp., from the Eocene of Lopare; OPPENHEIM, Beitr. Pal. Oesterr.-Ung. xiii, p. 236.
- Lucina phenax*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 492 [figd.; DALL, P. U. S. Mus. xxiii, p. 823]: *L. (Divaricella) dalliana*, S. Africa, (*D.*) *huttoniana*, New Zealand; VANATTA, P. Ac. Philad. 1901, p. 184, figg.: n. spp.
- Luciniscu*, n. subgen. of *Phacoides*, type *Lucina nassula*, Conrad; DALL, P. U. S. Mus. xxiii, p. 805.
- Lucinoma*, n. subgen. of *Phacoides*, type *Lucina filosa*, Stimpson; DALL, t. c. p. 806.
- Nodularidia*, n. n. for *Nodularia*, Conrad nec Oken; COCKERELL, Science xiii, p. 985.
- Myrtæa pristiphora*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 493, fig.: n. sp.
- +*Myrteopsis*, n. subg. of *Lucina* for *M. magnotaurina*, n. sp., Helvetian, Piedmont; SACCO (490), p. 96.
- Parvilucina*, n. subgen. of *Phacoides*, type *Lucina tenuisculpta*, Cptr.; DALL, P. U. S. Mus. xxiii, p. 806.
- Phacoides*, several species figured, with n. var. of *P. nuttallii*; DALL (146):

- P. trisulcatus*, Conrad, n. var.; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 493.
- Phacoides bermudensis*, Bermuda, *crenella*, E. United States, pp. 810, 825, *amiantus*, E. United States to Brazil, pp. 810, 826, *lamprus*, California, pp. 811, 827, *heroicus*, Gulf of California, pp. 812, 828, *approximatus*, California, pp. 813, 828; DALL, P. U. S. Mus. xxiii, figg. : n. spp.
- Pisidium tenuissimum*, p. 99, *monas*, *streatori*, p. 100, United States; STERKI, Nautilus xiv : *P. affine*, p. 66, *sargenti*, p. 77, United States; STERKI, op. cit. xv : n. spp.
- Pleurolocina*, n. sect. of *Here*, type *Lucina leucocyma*, Dall; DALL, P. U. S. Mus. xxiii, p. 805.
- Pompholigina*, apparently n. sect. of *Divaricella*, type *Lucina gibba*, Gray; DALL, t. c. p. 814.
- Quadrula lananensis*, Texas; FRIERSON, Nautilus xv, p. 75, fig. : n. sp.
- Scintilla sulphurea*, p. 286, *variabilis*, p. 287, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, figg. : n. spp.
- Sphaerium inutile*, Japan; PILSBRY, P. Ac. Philad. 1901, p. 406 : *S. crassum*, p. 140, *walkeri*, p. 141, Michigan; STERKI, Nautilus xiv : n. spp.
- Strophitus wrightianus*, Georgia; WALKER, op. cit. xv, p. 65, fig. : n. sp.
- †*Tauraxinus*, n. subg. of *Cryptodon* for *T. miorgosus*, n. sp., Helvetian, Piedmont; SAOCO (490), p. 61.
- Thyasira bisecta*, *conia*, figd.; DALL (146).
- Thyasira conia*, Porto Rico; DALL & SIMPSON, Bull. U. S. Fish Comm. 1900, i, p. 490 : *T. excavata*, W. America, *tomeana*, Chile, pp. 790, 818, *magellanica*, W. Patagonia, pp. 790, 819; DALL, P. U. S. Mus. xxiii, figg. : n. spp.
- Tridonta cagnii*, Cape Fligely, Franz Josefs Land, *cavalli*, Bay of Teplitz; POLLONERA, Boll. Mus. Torino xvi, No. 392 : n. spp.
- Unionida*, notes on; STERKI (563): On French species; BONNEMÈRE (61): Notes on North American fauna; IHERING (262): Classification; SIMPSON, Nautilus xv, p. 77 : *U. fruhstorferi*, figd.; BAVAY & DAUTZENBERG, J. Conchyl. xlix, p. 5.
- Unio briarti*, Congo Free State; DAUTZENBERG, Ann. Soc. malac. Belgique xxxv, p. 6, fig. : *U. messengeri*, Indo-China; BAVAY & DAUTZENBERG, J. Conchyl. xlix, p. 7, fig. : *U. missouriensis*, Missouri; MARSH, Nautilus xv, p. 74 : n. spp.
- Vaticinaria*, n. gen. for *Cryptodon moseleyi* and *luzonicus*, Smith; DALL, P. U. S. Mus. xxiii, p. 830.

PSEUDOLAMELLIBRANCHIATA.

- †*Amphijanira*, n. subg. of *Pecten* for the group of *P. janirula*; BITTNER (46), p. 49.
- Amusium steindachneri*, *siebenrocki*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 269, figg. : n. spp.
- †*Anomolima*, n. gen., type *Lima maxima*, d'Archiac; PHILIPPI, Zeitschr. Deutsch. geol. Ges. lii, p. 635.
- †*Antijanira*, n. subg. of *Pecten*; BITTNER (46), p. 49.
- Atrina oldroydii*, California; DALL, Nautilus xiv, p. 143 : n. sp.
- †*Aucella*, on the morphology, phylogeny, taxonomy and distribution of the group; POMPECKJ (458).
- †*Aucellina*, n. gen. for *Avicula aptiensis*, d'Orb. and *A. gryphaeoides*, Sby.; POMPECKJ, N. Jahrb. Min. B. B. xiv, p. 365.
- Avicula*, anatomy; GROBBEN (217).
- †*Aviculolima*, n. gen. for *A. jaekeli*, n. sp.; PHILIPPI, Zeitschr. Deutsch. geol. Ges. lii, pp. 622-624.

- Chlamys fenestrata*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxv, p. 730, fig.: n. sp.
- †*Clarcia*, n. subg. of *Pseudomonotis* for the group of *P. clarcia*, Emmer.; BITTNER, Jahrb. geol. Reichsanst. 1, p. 568.
- †*Dimyopsis*, n. gen. (provisionally proposed) for *Dimyodon wöhrmanni*, n. sp., Trias, St Cassian; BITTNER, Abh. geol. Reichsanst. xviii [1895], p. 219: N. gen. for *D. intusornata* and *plana*, n. spp.; BITTNER (46), p. 73.
- †*Enantiostreon*, n. gen. for *E. hungaricus*, n. sp., Trias, Hungary; BITTNER (46), p. 72.
- †*Eumorphotis*, n. ? subg. of *Pseudomonotis* for the group of *P. telleri*, Bittn., and *multiformis*, Bittn.; BITTNER, Jahrb. geol. Reichsanst. 1, p. 568.
- Limida*, classification of the family; PHILIPPI (427).
- Lima brunnea*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 21, fig.: *L. hirasei*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 209, 402, fig. [placed as a var. of *hians*, p. 402]: n. spp.
- Limopsis elachista*, Red Sea; STURANY, Ber. Comm. Ocean. Forschungen vii, p. 268, fig.: n. sp.
- Margaritifera*, monograph of; JAMESON, P. Zool. Soc. London 1901, i, pp. 372–394.
- Meleagrina*, anatomy; GROBBEN (217).
- Ostrea payraudeauxi*, Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 267: n. sp.
- Philobrya tatei*, New South Wales; HEDLEY, Rec. Austral. Mus. iv, p. 25, fig.: n. sp.
- Pinna cochlearis*, Djibouti; FISCHER, J. Conchyl. xlix, p. 126, fig.: n. sp.
- Pteria* (*Margaritifera*) *maxima* (= *margaritifera*, partim, auct.), N. Australia, etc., p. 377, *carchariarum*, W. Australia, p. 381, *natalensis*, Natal, p. 383, *pitcairnensis*, Pitcairn Island, p. 388, *panasense*, British New Guinea, p. 390, *mauriti*, Mauritius, p. 391; JAMESON, P. Zool. Soc. London 1901, i, figg.: n. spp.

FILIBRANCHIATA.

- Arca bicarinata*, Cebu; SOWERBY, P. Malac. Soc. London iv, p. 211, fig.: *A. (Scapharca) nipponensis*, Japan; PILSBRY, P. Ac. Philad. 1901, pp. 209, 402, fig.: n. spp.
- Modiolarca tasmanica*, figd.; TATE & MAY, P. Linn. Soc. N. S. Wales xxvi, p. 439.
- Myrina simpsoni*, Marshall, note on; MARSHALL, J. Malac. viii, p. 19.
- Pectunculus solidus* (Monts. MS), Corsica; LOCARD & CAZIOT, Ann. Soc. Linn. Lyon xlvii, p. 247: n. sp.
- Trigonia*, growth stages in; HALL (230).

PROTOBRANCHIATA.

- Protobranchiata, anatomy; PELSENER (419).
- Nucula delphinodonta*, *proxima*, habits, development; DREW (165).
- Sarepta* (?) *tellinaeformis*, New South Wales; HEDLEY, Rec. Austral. Mus. iv, p. 26, fig.: n. sp.
- Voldia limatula*, habits and development; DREW (165).

V. AMPHINEURA.

Phylogenetic relationship with Cephalopoda; KERR (287).
Anatomy; PELSENEER (419).

APLACOPHORA.

Chaetoderma radulifera, p. 264, *gutturosum*, p. 281, Sea of Marmora;
KOWALEVSKY, Arch. Zool. exp. ix, figs. : n. spp.
Paramenia cryophila, Antarctic; PELSENEER, Bull. Ac. Belgique 1901,
p. 529: n. sp.
Proneomenia gerlachi, Antarctic; PELSENEER, t. c. p. 528: n. sp.

POLYPLACOPHORA.

Anatomy and Phylogeny; PLATE (453).
Anatomy; PELSENEER (419).
Cryptoplax, review of genus; PILSBRY, P. Malac. Soc. London iv, p. 151.
Cryptoplax elioti, Samoan Islands; PILSBRY, t. c. p. 153, fig.: *C. japonicus*,
rhodoplax, Japan; PILSBRY, P. Ac. Philad. 1901, p. 204 : n. spp.
Ischnochiton conspicuus, Cptr., six-valved specimen; STEARNS, Nautilus
xv, p. 53.
Ischnochiton (Trachydermon) liononis, Porto Rico; DALL & SIMPSON, Bull.
U. S. Fish Comm. 1900, i, p. 452, fig.: n. sp.
Lepidopleurus pergranatus, Dall, figd.; DALL & SIMPSON, t. c. p. 451.
Onithochiton hirasei, Japan; PILSBRY, P. Ac. Philad. 1901, p. 203: *O. (?)*
isipingoensis, South Africa; SYKES, P. Malac. Soc. London iv, p. 259,
fig. : n. spp.

VIII. BRACHIOPODA.

BY

E. R. SYKES, B.A.

ASSISTED BY

E. A. SMITH AND S. PACE.

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- +*Anathyris*, n. subg. of *Athyris* for *A. phalæna*, Phill., and others, Devonian, Russia; PÄTZ, Trav. geol. St. Petersb. iv, pp. 134, 378.
- +*Aulacomerella*, n. gen. of *Protremata*, type *Grammysia macroderma*, Eichw., Ordovician; HUENE (41), p. 215: Is a Pteropod; HUENE, Centrbl. Mineral. 1901, p. 718.
- +*Plectella*, n. gen. for *P. semicircularis* and *semiovata*, n. spp. from the Silurian of St. Petersburg; LAMANSKY (51).
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- +*Thecospirella*, n. gen. for *T. loczyi*, n. sp. from the Hungarian Trias; BITTNER (9), p. 46.

IX. BRYOZOA.

BY

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Attention may also be called to the following, viz.:—CANU's revision of the Cretaceous Bryozoa Cheilostomata figured by d'Orbigny (5); papers by MAPLESTONE on new and old Tertiary Polyzoa (29–31); SARDESON, monograph of the *Monticuliporoidea* (46); NEVIANI (33–38), bibliography, etc.

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 †*Phylloporina asperato-striata*, Niagara, p. 168, fig. 68, GRABAU, Bull. N. York Mus. xlv.
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- +*Corbulipora ampulla*, MAPLESTONE, t. c., p. 207, pl. xxxiv, fig. 9, n. sp.
- +*Cribrilina gaudryana* n. n. for *Reptescharella radiata* d'Orb., p. 448, CANU, Bull. Soc. geol. France (3) xxviii.
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- +*L. costata*, pl. xxxv, fig. 12, *clavata*, fig. 13, *radiata*, fig. 14, p. 209, *quadratipectinata*, fig. 15, *cribrosa*, fig. 16, *calopora*, fig. 17, p. 210, *airensis*, fig. 18, *partipunctata*, fig. 19, *mamillifera*, fig. 20, p. 211, Tertiary, Victoria, MAPLESTONE, t. c.; +*L. subplana*, p. 219, pl. lix, figg. 17 & 18, *labiosa*, figg. 15 & 16, Eocene, Maryland, ULRICH, Geol. Surv. Maryland : n. spp.
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- +*M. ligulata*, p. 204, pl. xxxiv, fig. 1, +*M. bellis*, pl. xxiii, fig. 5, *globulosa*, fig. 6, p. 185, *aviculifera*, fig. 8, p. 186, *longipes*, fig. 9, *regularis*, fig. 10, p. 187, *porcellana*, fig. 11, p. 188, Tertiary, Victoria, MAPLESTONE, t. c.; *M. rimulata*, p. 211, pl. lx, figg. 1 & 2, *spiculosa*, p. 212, fig. 3 & 4, *angusta*, p. 213, figg. 5 & 6, Eocene, Maryland, ULRICH, Geol. Surv. Maryland : n. spp.
- +*Membraniporella decorata*, pl. xxxiv, fig. 7, *rugosa*, pl. xxxiv, fig. 8, p. 207, Tertiary, Victoria, MAPLESTONE, P. Soc. Victoria xiii, n. spp.
- +*Micropora elegans*, p. 205, pl. xxxiv, fig. 4, *lunipuncta*, p. 206, fig. 5, *carinata*, p. 207, fig. 6, MAPLESTONE, t. c., n. spp.
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X. CRUSTACEA.

(Including GIGANTOSTRACA AND PANTOPODA.)

BY

ALBERT BROWN, B.A., F.L.S.

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INTRODUCTION.

THE Record of Crustacea for 1901 is very much larger than any of its predecessors, the list of Titles reaching the number of 267. As usual by far the greater number of these are devoted to Decapoda, but the Isopoda, Copepoda, Cladocera and Ostracoda have come in for a fair share of attention.

Foremost amongst the works recorded must stand LILLJEBORG's "*Cladocera Sueciæ*," upon the completion of which the author is to be sincerely congratulated. This work should prove of the greatest value to specialists on the Entomostraca. MÜLLER's *Deutschlands Süßwasser-Ostracoden* (154) and Major ALCOCK's two noteworthy memoirs on Indian Decapoda (1-2) are also important. These are the largest works of the year.

STEBBING (214) has discovered that the name *Cuma* is preoccupied and proposes therefore to abolish it and also the name Cumacea for which he substitutes Sympoda. It may be questioned whether so well known a name should be abolished even for the sake of compliance with the accepted rules of nomenclature, and the author makes the substitution with great diffidence.

Fifty-five new genera and subgenera are recorded in the Systematic Index and these are distributed as follows:—*Decapoda* 21; *Schizopoda* 1; *Isopoda* 10; *Amphipoda* 4; *Cladocera* 4; *Copepoda* 6; *Ostracoda* 4; *Cirripedia* 2; *Eurypterida* 2; *Pantopoda* 1.

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Families. *Daphnidæ*, *Bosminidæ*, *Lyncodaphnidæ*, *Lynceidæ*.

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 Mediterranean, *Mulacostraca* incl. n. sp. of *Mysidopsis* (p. 293), n. sp. of *Hyssura* (p. 295), n. g. of *Munnida* (p. 297), n. sp. of *Leucothoe* (p. 302), n. sp. of *Melphidippa* (p. 304); WALKER (246).

(f) Palearctic Asia.

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China, *Cladocera*, n. sp. of *Macrothrix*; DADAY (45): *Isopoda*, n. sp. of *Metoponorthus*; DOLLFUS (53).

Japan, *Decapoda*, n. sp. of *Callinassa* and n. var. of *C. japonica*; BOUVIER (20): Hakodate Bay, *Isopoda*, n. sp. of *Idotea*; RICHARDSON (182).

(g) India, Ceylon, and Further India.

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Ceylon, *Decapoda*, n. sp. of *Munidopsis*, n. sp. of *Uroptychus*; MCARDLE (145).

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Minikoi, Land *Crustacea*; BORRADAILE (14), pp. 67 & 68.

(h) Malay Archipelago.

Borneo, *Decapoda*, n. sp. of *Paratelpusa*, n. var. & n. subsp. of *P. maculata*, n. sp. of *Potamon*, n. var. of *Uca annulipes*; NOBILI (158).

Sarawak, 20 spp. of *Decapoda* and 1 of *Stomatopoda*; NOBILI (158).

(i) Africa and Madagascar.

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White Nile, sp. of *Potamon*; FLOWER (60A). Bahr-el-Gebel (Fresh-water): *Decapoda*, n. sp. of *Potamon* (*Potamonautes*); DE MAN (140).

Massai Nyeke, *Ostracoda*, n. sp. of *Cypris* (p. 261), n. sp. of *Eurycypris* (p. 259) & n. sp. of *Stenocypris* (p. 265); MÜLLER (154): *Phyllopoda*, incl. n. sp. of *Estheria* (p. 568), n. sp. of *Streptocephalus* (p. 565); THIELE (219).

(k) North America.

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(l) Central and South America and West Indies.

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Barbadoes, *Decapoda*, n. sp. of *Coralliocaris*; COUTIÈRE (39).

Cuba, *Cirripedia*, n. sp. of *Scalpellum*; GRUVEL (79): *Cirripedia*, n. sp. of *Alepas*; GRUVEL (77) p. 258: *Decapoda*; GUNDLACH & TORRALBAS (80).

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Mexico, *Isopoda*, n. sp. of *Conilera*, PACKARD (169).

South America, 23 n. spp. (incl. 2 n. gg.) of *Cladocera*; SARS (192): *Copepoda*, 2 n. spp. of *Diaptomus*, 21 n. spp. (incl. 2 n. gg.) of *Ostracoda*; SARS (193): *Entomostraca*, SARS (192 & 193).

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Uruguay, *Decapoda*, n. sp. of *Uca*; NOBILI (159) p. 14.

Chili, *Decapoda*, n. sp. of *Pinnoteres*; NOBILI (159).

Patagonia, *Copepoda*, 7 n. spp. of *Boeckella*, n. sp. of *Limnocalanus*; DADAY (48). Patagonia (Coasts), *Cirripedia*, *Balanus*, CUONY (44). Cape Horn, *Cirripedia*, n. sp. of *Scalpellum*; GRUVEL (77) p. 257.

(m) Australasia.

New Zealand, *Decapoda*, incl. n. sp. of *Hippolyte*, n. sp. of *Eupagurus* and n. sp. of *Pinnotheres*; LENZ (125).

Coast of N. S. Wales, *Isopoda*, 9 n. spp. incl. 2 n. gg. [*Cussidinella* & *Pagurapseudes*]; WHITELEGGE (250).

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New Britain, *Stomatopoda* and *Macrura*; BORRADAILE (16) p. 395: *Decapoda*, n. sp. of *Callinassa* (p. 419), n. sp. of *Eiconaxius* (p. 420), n. sp. of *Palæmonopsis* n. g. (p. 410), 3 n. spp. of *Parapandalus* n. subg. (pp. 411-413); BORRADAILE (16): *Isopoda*, n. sp. of *Cubaris* (p. 655), n. g. of

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Chara Marl, Hitchin, *Ostracoda*; CHAPMAN (30A)

Tertiary, Hungary, *Decapoda*, 6 n. spp. incl. 4 n. gg.; LÖRENTHEY (134). Canaries: *Cirripedia*, n. sp. of *Chenolobia*; ROTHPLETZ & SIMONELLI (184) p. 66.

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IV. SYSTEMATIC INDEX.†

The following papers deal with *Crustacea* generally:—Nos. 7, 14, 28, 63, 72, 112, 167, 210, 214, 233.

MALACOSTRACA.

PODOPHTHALMA.

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The following papers deal with *Decapoda*:—Nos. 1-4, 8, 14, 16, 17-21, 39, 40, 42, 83, 94, 96, 100, 134, 140, 145, 158-160, 173, 180, 246, 252, 253, 259.

Synopses of all species and genera of Californian Stalk-eyed *Crustacea* will be found in HOLMES, Pap. Calif. Ac. vii.

Synopses of Indian *Dromiacea* will be found in ALCOCK (1).

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "described" or "descriptive notes" are to be understood.

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- Acanthodromia*, g. def. and *margarita* descr.; ALCOCK, Indian Decap. Crust. i, p. 36, pl. iii, figg. 3 & 3a.
- Actaea*, g. def., *rufopunctata nodosa*, *setigera*, *bifrons*, *acantha*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 33 & 34. *A. speciosa*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 460.
- Ayeon*, g. def., p. 117, *medium*, descr. p. 120; ALCOCK, Indian Deep-Sea Macrura. [See also *Parapontocaris*, p. 33.]
- A. affine*, off Bombay; ALCOCK, t. c., p. 118, n. sp.
- Aëpinus*, g. and *A. septemspinus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 54.
- Alpheinus*, n. g. of *Alpheidae* for *tridens*, Lifu; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 415, figg. 12a-g, n. sp.
- Alpheus*, g. def., p. 139, *macrocheles*, p. 140, *shearmeri*, p. 141, descr.; ALCOCK, Indian Deep-Sea Macrura. [See also *Synalpheus*.]
- A. diadema*, notes on limbs; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 417, figg. 17-17b. *A.*, g. def., *macrocheles*, *dentipes*, p. 105, *formosus*, *cristulifrons*, p. 106, *floridanus*, *heterochaelis*, *packardii*, p. 107, *rostratipes*, p. 108; RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- A. aglaophenia*, British New Guinea; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 417, figg. 13a-f. *A. californiensis*, San Pedro, Calif.; HOLMES, Pap. Calif. Ac. vii, p. 186. *A. armatus*, Ponce; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 108 : n. spp.
- Anasimus*, g. and *fugax* diagnosed; RATHBUN, t. c., pp. 58 & 59.
- Anchistus biunguiculatus*, ♀ descr.; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 408, figg. 5a-c. *A. spinigera*, notes on Pacific specimens; LENZ, Zool. Jahrb. Syst. xiv, p. 434.
- A. tenuipes*, Santa Catalina Is.; HOLMES, Pap. Calif. Ac. vii, p. 216, n. sp.
- † *Andorinu*, n. g. of *Oxyrrhynchidae*, for *elegans*; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam 5, p. 32, pl. iii, figg. 1a-2, n. sp.
- Arachnodromia*, g. def., p. 32, *baffini*, descr., p. 33, pl. i, figg. 1-1c; ALCOCK, Indian Decap. Crust. i.
- Aratus*, g. def. and *pisonii* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 17.
- Arctus*, g. def., p. 180, *orientalis*, p. 181, *rubens*, p. 182, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Arenæus*, g. and *cribrarius* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 50.
- Aristæus*, g. and subg. def., pp. 27-29, *virilis*, p. 30, *semidentatus*, p. 31, *carpenteri*, p. 32, *crassipes*, p. 33, *edwardsianus*, p. 36, *coruscans*, p. 37, *rostridentatus*, p. 39, *armatus*, p. 41, *tener*, p. 42, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Artemesia brevinaris*, Mar del Plata, Argentina, descr. and figg.; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 1, n. sp.
- Atya*, g. and *scabra* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 119.
- Atyoida*, see *Ortmannia*, p. 32.
- Automate*, g. and *evermanni*, off Aguadilla, diagnosed; RATHBUN, t. c., p. 112, n. sp.
- Axius*, g. def., *defensus*, off Boca Prieta, p. 95, *inæqualis*, Mayaguez Harbour, p. 96; RATHBUN, t. c., n. spp.
- Batrachonotus*, g., *fragosus* and *brasiliensis* diagnosed; RATHBUN, t. c., pp. 56 & 57.
- Benthæicymus*, g. def., p. 42, *investigatoris*, p. 44, *bartletti*, p. 45, descr.; ALCOCK, Indian Deep-Sea Macrura.

- Bithynia*, g. def., *jamaicensis*, *acanthurus*, p. 123, *olfersii*, *savignyi*, p. 124, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- Brachycarpus*, g. def., p. 137, *lucadivensis*, descr., p. 138; ALCOCK, Indian Deep-Sea Macrura.
- Callanidea*, g. and *levicauda* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 94.
- Calappa*, g. def., *flammea*, p. 84, *sulcata*, *gallus*, p. 85, diagnosed, RATHBUN, t. c. *C. convexa*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 29.
- Calustacus longispinis*, Arabian Sea, ♀ descr.; MCARDLE, Ann. Nat. Hist. (7) viii, p. 522, n. sp.
- Calcinus latens*, p. 443, *elegans*, p. 444, notes; LENZ, Zool. Jahrb. Syst. xiv. *C. obscurus*, note; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 26.
- C. imperialis*, Lord Howe Island; WHITELEGGE, Rec. Austral. Mus. iv, p. 48, pl. ix, n. sp.
- Callinassa*, g. def., p. 197, *cæcigena*, p. 198, *lignicola*, p. 200, descr.; ALCOCK, Indian Deep-Sea Macrura.
- +*C. rapax*; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam. 5, p. 4, pl. i, figg. 5a-b.
- C.*, g. def., *marginata*, *minima*, Mayaguez Harbour; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 92. *C. affinis*, Point Loma, Calif.; HOLMES, Pap. Calif. Ac. vii, p. 162. *C. californiensis*, var. *japonica*, nov., Japan, *harmandi*, Japan; BOUVIER, Bull. Mus. Paris 1901, p. 333. *C. novæ britannicæ*, New Britain, ♂; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 419, figg. 14a-d : n. spp.
- +*C. mortoni*, p. 112, pl. i, figg. 1-7, *conradi*, p. 114, pl. i, figg. 8-10, Cretaceous, N. Jersey; PILSBRY, P. Ac. Philad. liii, n. spp.
- Callinectes*, g. and Porto Rican spp. diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 47-49. *C. sapidus*, occurrence in Fresh water at Rochefort; BOUVIER, Bull. Mus. Paris vii, p. 16.
- Calocaris*, g. def., p. 187, *macandree*, p. 189, *alcocki*, p. 190, *investigatoris*, p. 191, *felix*, p. 192, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Cambarus pilosus*, ♂, Kansas, p. 121, *clypeatus*, ♀, St. Louis Bay, Mississippi, p. 122, descr.; HAY, P. U. S. Mus. xxii, n. spp.
- C. immunitis*, habits; HARRIS, Amer. Natural. xxxv, p. 187.
- +*Cancer whitfieldi*, Cretaceous, N. Jersey; PILSBRY, P. Ac. Philad. liii, p. 117, pl. i, fig. 18, n. sp.
- Cardisoma*, g. def. and *guanhumi*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 14 & 15.
- +*Carpiliopsis ornata*, note on specimens from Cretaceous of Faxe, Denmark; WOODWARD, Geol. Mag. (iv) viii, p. 500, pl. xii, figg. 5a-b.
- Carpilius*, g. def. and *corallinus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 24 & 25.
- Carpilodes monticulosus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 463.
- Catapaguiroides timidus* Roux [This name must replace *C. acutifrons* Edw. & Bouvier], variation; BOUVIER, Bull. Mus. Paris vi, pp. 369 & 370.
- Charybdella*, g., *rubra*, and *tumidula* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 51.
- Chasmocarcinus*, g. def., p. 9, *cylindricus*, Mayaguez Harbour, Porto Rico; RATHBUN, t. c., p. 10, n. sp.
- Chlenopagurus*, g. def., p. 228, *andersoni*, p. 229, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Chlorodiella*, g. def. and *longimana* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 36.
- Chlorotocus*, g. def., p. 100, *gracilipes*, var. *andamensis*, descr.; ALCOCK, Indian Deep-Sea Macrura, p. 101.
- Chorinus*, g. and *heros* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 61.

- Cirolana chaloti*, commensal with Pagurids; BOUVIER, Bull. Mus. Paris 1901, p. 394, n. sp.
- Chibanarius albidigitus*, Baia di Sant' Elena; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 24, n. sp.
- Clythrocerus*, g. and *perpusillus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 90, n. sp.
- Canobitu rugosus compressus*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 27.
- Collodes*, g. and *inermis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 55 & 56.
- C. levis*, Porto Rico; RATHBUN, t. c., p. 56, n. sp.
- Conchoecetes*, g. def., p. 40, *artificiosus*, p. 41, pl. iii, fig. 16, *andamanicus*, p. 43, pl. iii, fig. 17, descr.; ALCOCK, Indian Decap. Crust. i.
- Coralliocaris agassizi*, Barbadoes; COUTIÈRE, Bull. Mus. Paris vii, p. 116.
- C. camerani*, Flamingo Is.; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 3 : n. spp.
- Crangon alba*, Monterey, *stylirostris*, Trinidad, Calif.; HOLMES, Pap. Calif. Ac. vii, p. 174, n. spp.
- C. boreas*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 438. *C. vulgaris*, var. *maculosus*, Larva; GOURRET, P., C.R. Ass. France xxix, Pt. ii, p. 738.
- Crangonyx subterraneus*, notes and figg.; CHEVREUX, Bull. Soc. zool. France xxvi, p. 235.
- Cronius ruber*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 32.
- Cryptodromia*, g. def., p. 48, *pileifera*, p. 49, pl. ii, fig. 7, *canaliculata*, p. 50, pl. ii, fig. 8, *bullifera*, p. 51, pl. ii, figg. 9 & 9a, *de manii*, p. 52, *hilgen-dorfi*, p. 52, pl. iii, fig. 11, *ebalioides*, p. 53, pl. iii, fig. 12, *gilesii*, p. 54, pl. iii, fig. 13, descr.; ALCOCK, Indian Decap. Crust. i.
- Cryptolithodes siichensis*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 449.
- Cryptopodia*, g. and *concava*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 82.
- Cycloes*, g. and *bairdii*, diagnosed; RATHBUN, t. c. p. 85.
- Cyclograpsus minutus*, descr.; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 13.
- Cycloxanthops*, g. def., and *denticulatus*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 27.
- C. rugosa*, San Diego, Calif.; HOLMES, Pap. Calif. Ac. vii, p. 59, n. sp.
- †*Daranyia*, n. g. of *Catometopida* for *granulata*; LÖRENTHEY, Math. tern. Kozlem. Magyar Ak. xxvii, Szam 5, p. 35, pl. ii, figg. 3a-c, n. sp.
- Dilocarcinus panoplus*, var. *marmorata*, nov., Tigre, Argentina, descr.; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 11.
- Dissodactylus*, g. def., p. 21, *encopei*, Porto Rico; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 22, n. sp.
- Domecia*, g. def. and *hispida* diagnosed; RATHBUN, t. c., p. 43.
- Dorodotes*, g. def. and *reflexus* descr.; ALCOCK, Indian Deep-Sea Macrura, p. 108.
- Dromia*, g. def., p. 43, *rumphii*, p. 44, pl. ii, fig. 4, *cranioides*, p. 46, pl. ii, fig. 5, *unidentata*, p. 47, fig. 6, descr.; ALCOCK, Indian Decap. Crust. i.
- †*Dromiopsis coplandæ*, Cretaceous, Faxø, Denmark, p. 498, pl. xii, figg. 2a & b, *birleyæ*, p. 498, pl. xii, figg. 1a-b; WOODWARD, Geol. Mag. (iv) viii, n. spp.
- †*D. rugosa*, p. 493, pl. xii, figg. 3a, b, & 4a-c, *minor*, p. 495, *elegans*, p. 495, *levior*, p. 496, *depressa*, p. 497, notes on Cretaceous specimens from Faxø, Denmark; WOODWARD, t. c.
- Dynomene*, g. def. and *pilumnoides* descr.; ALCOCK, Indian Decap. Crust. i, p. 35, pl. i, fig. 2.
- Ebalia*, g. and *stimpsonii* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 87.

- Eiconaxius taliliensis*, Talili Bay, New Britain; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 420, figg. 15a-c, n. sp.
- Engystenopus*, g. def., p. 143, *palmipes*, descr., p. 144, pl. iii, figg. 3; ALCOCK, Indian Deep-Sea Macrura.
- Ephyrina*, g. def., p. 83, *hoskynii*, p. 84; ALCOCK, t. c.
- Epialtus*, g. and *bituberculatus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 60 & 61.
- Epilobocera*, g. def. and *sinuatifrons* diagnosed; RATHBUN, t. c. p. 23.
- Eriphia*, g. def. and *gonagra* diagnosed; RATHBUN, t. c. p. 42.
- +*Eryma guiffei*, p. 80, fig. 2, *lemairei*, p. 80, fig. 3, *nicklei*, p. 81, figg. 5 & 6, *authelini*, p. 82, fig. 7, Jurassic, Lorraine; MÉCHIN, Bull. Soc. Nancy (3) ii, n. spp.
- +*E. propinqua* p. 79, fig. 1, *elegans*, p. 82, figg. 8 & 9, Jurassic, Lorraine, descr.; MÉCHIN, t. c.
- Eryonicus*, g. def. *indicus*, descr.; ALCOCK, Indian Deep-Sea Macrura, p. 176.
- Ethusa*, g. and *mascarone americana* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 89.
- Eucartodes*, g. def. and *agassizi* diagnosed; RATHBUN, t. c., p. 35.
- Eucinetops*, g. and *blakiana* diagnosed; RATHBUN, t. c., p. 55.
- Eucratops*, def. and *spinidentata* diagnosed; RATHBUN, t. c., p. 11.
- Eupagurus intermedius*, French Pass; LENZ, Zool. Jahrb. Syst. xiv, p. 446, pl. xxxii, figg. 8-10, n. sp.
- E. tenuimanus*, p. 445, pl. xxxii, figg. 6 & 7, *hectori*, *traversi*, p. 447, notes; LENZ, t. c.
- Eupanopeus*, g. def. *herbstii*, *occidentalis*, *americanus*, *hartii*, *bermudensis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 28 & 29.
- Euprognatha*, g. *rastellifera* and *gracilipes* diagnosed; RATHBUN, t. c., pp. 57 & 58.
- Eurypanopeus*, g. def. and *abbreviatus* diagnosed; RATHBUN, t. c., p. 30.
- Euryplax*, def. and *nitida* diagnosed; RATHBUN, t. c., p. 8.
- Eurytium*, g. def. and *limosum* diagnosed; RATHBUN, t. c., p. 41.
- Embaccus princeps*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 8.
- Galacantha*, g. def., p. 274, *rostrata*, p. 275, var. *investigatoris*, p. 276, *spinosa*, p. 277, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Gulathea spinimanus*, Lifu; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 421, figg. 16a-b, n. sp.
- +*G. strigifera*, p. 488, *munidides*, p. 489, pl. xii, figg. 8 & 9, Up. Cretaceous, Faxe, Denmark, notes; WOODWARD, Geol. Mag. (iv) viii.
- Gebicula*, n. g. of *Callianassidae* def., p. 201, for *exigua*, Andaman Sea; ALCOCK, Indian Deep-Sea Macrura, p. 202, pl. ii, fig. 4, n. sp.
- Gecarcinus*, g. def. *lateralis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 14. *G. ruricola*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 46.
- Gecarcoidea lalardei*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 473.
- Geograpsus*, g. def. and *lividus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 16.
- Gennadas*, g. def., *carinatus*, *parvus*, descr.; ALCOCK, Indian Deep-Sea Macrura, p. 45.
- Glyphocrangon*, g. def., p. 125, *investigatoris*, p. 127, *smithii*, *priononata*, p. 129, *unguiculata*, p. 130, *hastacauda*, p. 131, *gilesii*, p. 132, descr.; ALCOCK, t. c. [See also *Plastocrangon*, p. 34.]
- Glyptoplax*, g. def. and *pusilla* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 32 & 33.
- Glypturus*, g. and *branneri* diagnosed; RATHBUN, t. c., p. 93.
- Gnathophyllum*, g. and *americanum* diagnosed; RATHBUN, t. c., p. 126.
- Goniopsis*, g. def. and *cruentatus* diagnosed; RATHBUN, t. c., p. 15, pl. i.
- Grapsus*, g. def. and *grapsus* diagnosed; RATHBUN, t. c., p. 16: notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 41.

- Grapsodius*, n. g. of *Grapsidae* for *erimius*, San Diego, Calif.; HOLMES, Pap. Calif. Ac. vii, p. 83, n. sp.
- Haliporus*, g. def., p. 22, *æqualis*, p. 23, *neptunus*, p. 24, *microps*, p. 25, *taprobanensis*, p. 25, *villosus*, p. 26, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Hemus*, g. and *cristulipes* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 62 & 63.
- Hepatus*, g. and *princeps* diagnosed; RATHBUN, t. c., p. 86.
- Heptacarpus*, n. g. of *Hippolytidae* for *Hippolyte palpator* Omn.; HOLMES, P. Calif. Ac. vii, p. 195.
- H. paludicola*, Humboldt Bay, p. 201, *carinatus*, Monterey Bay, p. 202, *tenuissimus*, Monterey, p. 203; HOLMES, t. c., n. spp.
- Heterocarpus*, g. def., p. 102, *gibbosus*, p. 103, *lævigatus*, p. 105, *alphonsi*, p. 106, *ensifer*, *tricarinatus*, p. 107, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Heterocarpus wood-masoni*, Andaman Sea; ALCOCK, t. c., p. 108, n. sp.
- Heterocrypta*, g. and *granulata* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 83.
- H. lapidea*, St. Thomas; RATHBUN, t. c., p. 83, n. sp.
- Hexapanopeus*, g. def., *caribbaeus*, *hemphillii* diagnosed; RATHBUN, t. c., pp. 30 & 31.
- H. quinquedentatus*, Porto Rico; RATHBUN, t. c., p. 31, n. sp.
- Hippa emerita*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 28.
- Hippolysmata*, g. and *moorei* diagnosed, Playa de Ponce; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 115, n. sp.
- H. intermedia* diagnosed; RATHBUN, t. c., p. 116.
- Hippolyte suckleyi*, p. 432, pl. xxxii, fig. 1, *spinifrons*, p. 433, notes; LENZ, Zool. Jahrb. Syst. xiv.
- H. amabilis*, Bare Island; LENZ, t. c., p. 432, pl. xxxii, figg. 2 & 3, n. sp.
- Holopagurus*, n. g. of *Paguridae* def. for *pilosus*, San Diego, Calif.; HOLMES, P. Calif. Ac. vii, p. 153, n. sp.
- Homola*, g. def., p. 60, *andamanica*, p. 61, pl. iv, fig. 20, *megalops*, p. 62, pl. iv, fig. 21, *profundorum*, p. 63, pl. v, fig. 22; ALCOCK, Indian Decap. Crust. i.
- + *Homolopsis transiens*, Cretaceous, Faxø, Denmark, Notes; WOODWARD, Geol. Mag. (iv) viii, p. 499.
- Homoriscus*, n. g. of *Homaridae* def. for *portoricensis*, Playa de Ponce; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 98, n. sp.
- + *Hoplopatria gabbi*, p. 115, pl. i, figg. 11-14, *gladiator*, p. 116, pl. i, figg. 15 & 16, Cretaceous, N. Jersey; PILSBRY, P. Ac. Philad. liii, n. spp.
- Hoplophorus*, g. def., p. 72, *gracilirostris*, p. 73; ALCOCK, Indian Deep-Sea Macrura.
- Hypsophrys*, g. def., p. 66, pl. vi, fig. 24, *superciliosa*, p. 67, *longipes*, p. 69, pl. vi, fig. 25, descr.; ALCOCK, Indian Decap. Crust. i.
- Iconaxiopsis*, n. g. of *Palinuridae* def., p. 193, *taccidivensis*, Arabian Sea, p. 195, *andamanensis*, Bay of Bengal, p. 196, pl. ii, fig. 1, descr.; ALCOCK, Indian Deep-Sea Macrura i, n. spp.
- Inachoides*, g. and *intermedius* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 59.
- Joussaumea*, g. and *trigona*, off Vieques, diagnosed; RATHBUN, T. c., p. 111, n. sp.
- Lambrus*, g. and *agonus* diagnosed; RATHBUN, t. c., p. 79.
- Lasiodromia*, n. n. for *Homalodromia* [nec *Homolodromia*], g. def. p. 56, *coppingeri*, descr., p. 57, pl. iii, figg. 15 & 15a; ALCOCK, Indian Decap. Crust. i.
- Latreillia*, g. def., p. 70, *pennifera*, p. 71, pl. vii, fig. 27, descr.; ALCOCK, t. c.
- Latreillopsis*, g. def., p. 72, *bispinosa*, p. 73, pl. vii, fig. 26, descr.; ALCOCK, t. c.

- Latreutes*, g. and *ensiferus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 114.
- Leander gardineri*, Maldive Ids., BORRADAILE, in GARDINER's "Fauna and Geog. of Maldive and Laccadive Archipelagoes," i, p. 98, n. sp.
- L. debilis*, *affinis*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 435.
- Leiolambrus*, g. def., p. 80, *nitidus*, Mayaguez Harbour; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 80, n. sp.
- Leptochela*, g., *carinata* and *serratorbita* diagnosed; RATHBUN, t. c., p. 127.
- Leptodius*, g. def. and *floridanus* diagnosed; RATHBUN, t. c., pp. 26 & 27.
- Leptopisa*, g. and *setirostris* diagnosed; RATHBUN, t. c., p. 75.
- Liomera*, g. def., *longimana*, *dispar* diagnosed; RATHBUN, t. c., p. 25.
- Lissa*, g. and *bicarinata* diagnosed; RATHBUN, t. c., p. 64.
- Lithadia*, g. and *pontifera* diagnosed; RATHBUN, t. c., p. 88.
- Lithodes*, g. def. and note on *agassizii*; ALCOCK, Indian Deep-Sea Macrura, p. 232.
- Lophozozymus incisus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 461.
- Lupella*, g. def. and *forceps* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 49 & 50.
- Macrocaloma*, g. def., p. 73, *trispinosum*, *subparallelum*, *diacanthum*, *diplacanthum*, p. 74, *concarum*, p. 75, diagnosed; RATHBUN, t. c.
- Melybia*, g. def. and *thalamita* diagnosed; RATHBUN, t. c., pp. 42 and 43.
- Menippe frontalis*, notes; NOBILI, Boll. Mus. Torino xvi, No. 315, p. 33.
- M.*, g. def. and *nodifrons* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 36 & 37.
- Metograpsus thukuhar*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 470.
- Micropanope*, g. def., *lobifrons*, *xanthiformis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 32.
- Microphrys*, g., *bicornutus* and *platysoma* diagnosed; RATHBUN, t. c., pp. 71 and 72.
- Mithrax*, g. def. and key to Porto Rican spp., p. 66, *acuticornis*, *spinosis-sinus*, *pilosus*, p. 66, *hispidus*, *lacrimans*, p. 67, *depressus*, *pleuracanthus*, p. 68, *ruber*, *hemphilli*, *holderi*, p. 69, *cinctimanus*, *forceps*, p. 70, *sculptus*, *coryphe*, p. 71, descr.; RATHBUN, t. c.
- M. plumosus*, Puerto Real; RATHBUN, t. c., p. 67, n. sp.
- Munida*, g. def., p. 237, *comorina*, p. 239, *microps*, p. 240, *lariocheles*, p. 241, *andamanica*, p. 242, *squamosa* var. *prolixa*, p. 244, *tricarinata*, p. 246, descr.; ALCOCK, Indian Deep-Sea Macrura.
- +*M. primæva*, notes on specimens from Cretaceous of Faxø, Denmark; WOODWARD, Geol. Mag. (iv) viii, p. 490.
- M. vigiliarum*, Bay of Bengal; ALCOCK, Indian Deep-Sea Macrura, p. 243, n. sp.
- Munidopsis*, g. and subgg. def., p. 247, *hemingi*, p. 251, *dasyptus*, p. 252, *unguifera*, p. 253, *scobina*, p. 254, *iridis*, p. 255, *stylirostris*, p. 256, *wardeni*, p. 257, *goodridgii*, p. 258, *moresbyi*, p. 259, *trifida*, p. 260, *triana*, *regia*, p. 261, *trachypus*, p. 262, *posidonica*, p. 263, *tridentata*, p. 264, *edwardsii*, p. 265, pl. iii, fig. 4, *ciliata*, p. 267, *subsquamosa* var. *pallida*, p. 268, *arietina*, p. 269, *centrina*, p. 270, *cylindrophthalmus*, p. 272, *levis*, p. 274; ALCOCK, t. c.
- M. (Bathynankyristes) tenax*, nom. nov. for *spinosus*; ALCOCK, t. c., p. 273.
- M. granosa*, Bay of Bengal, p. 266, *ceratophthalmus*, Andaman Sea, p. 271, pl. iii, fig. 2; ALCOCK, t. c. *M. orcina* Arabian Sea, ♂ descr., p. 523, *sinclairi*, Ceylon, ♀ descr., p. 524; MCARDLE, Ann. Nat. Hist. (7) viii : n. spp.
- Nematocarcinus*, g. def. p. 86, *tenuipes*, p. 87, *tenuirostris*, p. 88, *cursor*, p. 89, *gracilis*, p. 90; ALCOCK, Indian Deep-Sea Macrura.
- Nephrops*, g. def., *thomsoni* and var. *andamanica*, descr.; ALCOCK, t. c. p. 153.
- Nephrops andamanica*, morphology, etc.; ALCOCK, Indian Decap. Crust. i, pp. 2-13.

- Nephropsis*, g. def. p. 157, *stewarti*, p. 159, *carpenteri*, p. 160, *atlantica*, p. 161, *suhmi*, p. 163, descr.; ALCOCK, Indian Deep-Sea Macrura.
- N. ensirostris*, Arabian Sea; ALCOCK, t. c., p. 162, n. sp.
- Ocypode ceratophthalma*, *cordimana*, habits, burrows, etc.; BORRADAILE, in GARDINER'S Fauna and Geog. of the Maldives and Laccadive Archipelagoes, i, pp. 94-96. *O.* def. and *albicans* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 6.
- Oregonia gracilis*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 453.
- Ortmannia*, nom. nov. for *Atyoida* Ortmann, *potimirim*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 120.
- Ovalipes bipustulatus*, descriptive notes on Argentine specimens; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 7.
- Ozius agassizii*, notes; NOBILI, op. cit. No. 415, p. 36. *O. lobatus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 465. *O.* g. def. and *reticulatus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 37.
- Pachycheles rudis*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 18. *P. sculptus*, notes on var. incl. *tuberculatus* nov. var.; BORRADAILE in WILLEY'S Zool. Res. Pt. iv, p. 423.
- P. lifuensis*, Lifu; BORRADAILE, t. c. p. 424. *P. vicarius*, Baia di S. Elena; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 19; n. spp.
- Pachygrapsus*, g. def., *gracilis* and *transversus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 17. *P. transversus*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 41.
- Paguristes*, g. def. p. 225, *punicus*, descr. p. 226; ALCOCK, Indian Deep-Sea Macrura.
- P. parvus*, San Pedro, Calif., p. 151, *bakeri*, San Diego, Calif., p. 152; HOLMES, Pap. Calif. Ac. vii, n. spp.
- Pagurodes*, g. def., *inarmatus*, *limatus*, descr.; ALCOCK, Indian Deep-Sea Macrura, p. 225.
- Pagurus gemmatus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 442. *P. sinistripes*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 23.
- P. minimus*, San Diego; HOLMES, Pap. Calif. Ac. vii, p. 145, n. sp.
- Palæmon grandimanus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 436, pl. xxxii, figg. 4 & 5. *P. amazonicus*, p. 5, *acanthurus* var. p. 6, *jamaicensis*, p. 7, notes; NOBILI, Boll. Mus. Torino xvi, No. 415. *P.* g., *affinis*, *paulensis*, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 125.
- Palæmonetes argentinus*, Buenos-Ayres, descr.; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 3, n. sp.
- Palæmonopsis*, n. g. of *Palæmonidae*, for *willeyi*, Lalun, New Britain; BORRADAILE in WILLEY'S Zool. Res. Pt. iv, p. 410, figg. 7a-e, n. sp.
- †*Palæomonida*, n. g. of *Galatheidae*, for *defecta*; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam 5, p. 6, pl. i, fig. 3, n. sp.
- Palicus*, def. p. 12, *alternatus*, p. 12, *sica*, p. 13, diagnosed, RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- Palinurus japonicus*, notes on specimens from Laysan; LENZ, Zool. Jahrb. Syst. xiv, p. 440. *P. inflatus*, notes; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 10.
- Pandalus*, g. and subgg. def. p. 92, *martius*, p. 95, *ensis*, p. 96, *unidens*, *alcocki*, p. 97, *ocellus*, *bifurca*, p. 98, *spinipes*, p. 100; ALCOCK, Indian Deep-Sea Macrura. [See also *Parapandalus*.]
- P.* g. and *longicauda*, Mayaguez Harbour, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 117, n. sp.
- Panopla* def. and *depressa* diagnosed; RATHBUN, t. c. p. 12.
- Pantomus*, g. and *parvulus* diagnosed; RATHBUN, t. c. pp. 117 & 118.
- Panulirus*, g. def. p. 184, *angulatus*, p. 185; ALCOCK, Indian Deep-Sea Macrura. *P. demani*, nom. nov. for *Panulirus polyphagus* Ortmann;

- BORRADAILE in WILLEY's Zool. Res. Pt. iv, p. 418. *P.*, g. and *argus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 98.
- P. bispinosus*, Lifu; BORRADAILE in WILLEY's Zool. Res. Pt. iv, p. 418, n. sp.
- Paracrangon echinatus*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 439.
- Parhippolyte*, n. g. of *Latreutidae* for *uveae*, Uvea, Loyalty Is., ♀ descr.; BORRADAILE, in WILLEY's Zool. Res. Pt. iv, p. 414, figg. 11a-g, n. sp.
- Paralomis*, g. def. p. 232, *investigatoris*, p. 233, *indica*, p. 234, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Paramithrax cristatus*, *peroni*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 454.
- Paramolopsis*, g. def. and *boasi* descr.; ALCOCK, Indian Decap. Crust. i, p. 65, pl. v, fig. 23.
- Parapagurus*, g. def. p. 216, *pilosimanus*, p. 218, *andersoni*, p. 220, var. *brevimanus*, p. 221, *minutus*, p. 222; ALCOCK, Indian Deep-Sea Macrura.
- Parapandalus*, subg. nov. of *Pandalus* for *serratifrons*, New Britain, ♂ descr., p. 411, figg. 8a-d, *tenuipes*, New Britain, descr., p. 412, fig. 9, *longirostris*, New Britain, ♀ descr., p. 413, figg. 10a-h; BORRADAILE, in WILLEY's Zool. Res. Pt. iv, n. spp.
- Parapasiphaea*, g. def., p. 64, *latirostris*, p. 65, *gilesii*, p. 66, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Parapenaeus*, g. def., *constrictus*, *similis*, p. 101, *megalops*, p. 102, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- P. americanus*, Mayaguez Harbour; RATHBUN, t. c., p. 102, pl. ii, n. sp.
- Parapinnixa affinis*, Dead Man's Is., San Pedro, Calif.; HOLMES, P. Calif. Ac. vii, p. 96, n. sp.
- Parapontocaris*, n. subg. of *Aegeon* def., p. 120, for *andamense*, p. 121, and *bengalense*, p. 122, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Parapylocheles*, n. g. of *Pylochelidae* def., p. 213, for *scorpio*, descr., p. 214; ALCOCK, Indian Deep-Sea Macrura.
- Parathelphusa maculata* var. *lanchesteri* nov., Sarawak; NOBILI, Boll. Mus. Torino xvi, No. 397, p. 8.
- P. shelfordi*, Liubang, ♀, descr.; NOBILI, t. c., p. 10, n. sp.
- P. maculata oxygona*, Sarawak; NOBILI, t. c., p. 9, n. subsp.
- Pasiphaea*, g. def., p. 58, *sivado*, p. 59, *unispinosa*, p. 60, *alcocki*, p. 61, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Pelia*, g. and *mutica* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 62.
- Penaeus*, g. and subgg. def., p. 13, *coniger*, p. 16, var. *andamenensis*, p. 17, *rectacutus*, p. 17, *investigatoris*, p. 18, descr.; ALCOCK, Indian Deep-Sea Macrura. *P.*, g. and *brasiliensis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 100.
- P. californiensis*, Anaheim, Calif.; HOLMES, P. Calif. Ac. vii, p. 218, n. sp.
- Pentacheles*, g. def., p. 171, *hextii*, p. 172, *gibbus*, p. 173, *carpenteri*, p. 174, *beaumontii*, p. 175, descr.; ALCOCK, Indian Deep-Sea Macrura.
- Pernon*, g. def. and *planissimum* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 19.
- Peridimenes lifuensis*, p. 405, figg. 1a-c, *tenuipes*, p. 406, figg. 2a-f, *parvus*, p. 407, figg. 3a-c, *parasiticus*, p. 407, figg. 4a & b, descr.; BORRADAILE, in WILLEY's Zool. Res. Pt. iv. *P.*, g. and *americanus* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 121.
- Persophena*, g. and *punctata* diagnosed; RATHBUN, t. c., pp. 86 & 87.
- Petalomera*, g. def. *indica* descr.; ALCOCK, Indian Decap. Crust. i, p. 54, pl. iii, figg. 14 & 14a.
- Petrolisthes angulosus*, p. 5, *spinifrons*, p. 6, *affinis*, p. 7, descriptive notes; NOBILI, Boll. Mus. Torino xvi, No. 402. *P. armatus*, p. 11, *marginalis*, p. 12, *gracilis*, p. 13, *sinuimanus*, p. 15, notes; NOBILI, op. cit., No. 415. *P. cinctipes*, notes; LENZ, Zool. Jahrb. Syst. xiv, p. 451.
- P. bispinosus*, Lifu; BORRADAILE in WILLEY's Zool. Res. Pt. iv, p. 422.

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- Phoberus*, g. def., p. 155, *cæcus* descr., p. 156; ALCOCK, Indian Deep-Sea Macrura.
- +*Phrynosomus corallinus*; LÖRENTHEY, Math. term. Kozlem Magyar Ak. xxvii, Szam. 5, p. 14, pl. ii, figg. 4a-6.
- +*Phyllonodes steinmanni*; LÖRENTHEY, t. c., p. 15, pl. i, fig. 4, n. sp.
- Picroceroides*, g. and *tubularis* diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 76.
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- P. meridionalis*, Mar del Plata, descr.; NOBILI, Boll. Mus. Torino xvi, No. 402, p. 8, n. sp.
- Pitho*, g. def., p. 76, *aculeata*, *anisodon*, p. 77, *iherminieri*, *mirabilis*, p. 78, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- Pinnixa*, g. def. *minuta*, Porto Rico; RATHBUN, t. c., p. 21, n. sp.
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- Pontophilus*, g. def., *gracilis*, p. 115, *abyssi*, p. 116; ALCOCK, Indian Deep-Sea Macrura.
- Porcellanides*, n. g. of *Galatheidæ*, for *festæ*, Ecuador; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 21, n. sp.
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- Potamon (Potamonautes) hilgendorfi*, descriptive notes and measurements, p. 101, *cristatum*, descriptive notes and measurement; DE MAN, P. Z. S. 1901 (i).
- P. (Potamonautes) floweri*, Bahr-el-Gebel, in freshwater, described and compared with allied spp.; DE MAN, t. c., p. 94, pl. x. *P. kuchingense*, Kuching, Borneo, ♂, descr.; NOBILI, Boll. Mus. Torino xvi, No. 397, p. 5 : n. spp.
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- Pylocheles*, g. def., p. 210, *miersii*, descr.; ALCOCK, Indian Deep-Sea Macrura, p. 212.
- †*Ranina bittneri*; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam 5, p. 9, pl. i, figg. 1-2c, n. sp.
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- Scyramantha*, g. and *hystrix* diagnosed; RATHBUN, t. c., pp. 61 & 62.
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- Solenocera*, g. def., p. 19, subg. p. 21, *hextii*, p. 20, *annectens*, p. 21, descr.; ALCOCK, Indian Deep-Sea Macrura.
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- Spelaeophorus*, g. and *nodosus* diagnosed; RATHBUN, t. c., pp. 88 & 89.
- Speocarcinus*, def., p. 10, *carolinensis*, diagnosis; RATHBUN, t. c., p. 11.
- Sphaerodromia*, g. def., p. 38, *kendalli* descr., p. 39, pl. iv, figg. 18 & 18a, *nux*, descr., p. 40, pl. iv, fig. 19; ALCOCK, Indian Decap. Crust. i.
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- Synalpheus demani*, nom. nov. for *Alpheus triunguiculatus*; BORRADAILE, in WILLEY's Zool. Res., Pt. iv, p. 416. *S. levimanus*, var. *haddoni*, nov., Torres Straits, descr.; COUTIERE, Bull. Mus. Paris vi, p. 412.
- S.*, g. def., *minus*, p. 109, *levimanus longicarpus*, *levimanus parvifiti*, *neptunus*, p. 110, diagnosed; RATHBUN, Bull. U. S. Fish Comm. 1900, ii.
- Syncaris*, n. g. of *Atyidæ* [*Miersia pacifica* Holmes, type], *trewi*, San Gabriel; HOLMES, Pap. Calif. Ac. vii, pp. 211, 213, n. sp.
- Teleophrys*, g., diagnosed, p. 64, *ornatus*, Mayaguez Harbour; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 65, n. sp.
- †*Telephusograpsus*, n. g. of *Brachyura*, for *lævis*; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam 5, p. 18, pl. ii, figg. 2a-3, n. sp.

- Tetraplax*, n. g. of *Ocypodidae*, def. for *Frevillea quadridentata*, diagnosis ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 9.
- Thoe*, g. and *puella*, diagnosed ; RATHBUN, t. c., p. 63.
- T. aspera*, *Culebra* ; RATHBUN, t. c., p. 63, n. sp.
- Thor*, g. and *floridanus* diagnosed ; RATHBUN, t. c., p. 116.
- †*Titanocarcinus raulinianus* ; LÖRENTHEY, Math. term. Kozlem. Magyar Ak. xxvii, Szam 5, p. 17, pl. ii, figg. 1 a & b.
- Tozeuma*, g. and *carolinense* diagnosed ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 114.
- Trapezia ferruginea maculata* ; LENZ, Zool. Jahrb. Syst. xiv, p. 466.
- Trichocarcinus walkeri*, nom. nov. for *T. recurvidens* Walker [Tr. Liverp. Biol. Soc. xii, p. 271] ; HOLMES, P. Calif. Ac. vii, p. 53. *T. oregonensis*, notes ; LENZ, Zool. Jahrb. Syst. xiv, p. 452.
- Uca* def. and key to Porto Rico spp., p. 6, *mordax*, *pugnax rapax*, *leptodactyla*, *thayeri*, diagnosed ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 7. *U. annulipes*, var. *orientalis* nov., Buntal, Borneo, ♂ descr. ; NOBILI, Boll. Mus. Torino xvi, No. 397, p. 13. *U. macrodactyla*, notes ; NOBILI, op. cit., No. 415, p. 49.
- U. uruguayensis*, La Sierra, Uruguay ; NOBILI, op. cit., No. 402, p. 14. *U. festæ*, Rio Daule Inferiori ; NOBILI, op. cit., No. 415, p. 51 : n. spp.
- Ucides occidentalis*, notes ; NOBILI, t. c., p. 48. *U.*, g. def. and *cordatus* diagnosed ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 14.
- Urocaris*, g. and *longicaudata*, diagnosed ; RATHBUN, t. c., p. 126.
- Uroptychus*, g. def., p. 281, *fusimanus*, p. 283, *australis*, p. 284, *bacillimanus*, p. 285, descr. ; ALCOCK, Indian Deep-Sea Macrura.
- U. nigricapilis*, Andaman Sea ; ALCOCK, t. c., p. 283, p. iii, fig. 3. *U. nanophyes*, Ceylon ; MCARDLE, Ann. Nat. Hist. (7) viii, p. 525 : n. spp.
- Willemoesia*, g. def., *indica*, Bay of Bengal ; ALCOCK, Indian Deep-Sea Macrura, p. 178, pl. i, fig. i, n. sp.
- Xanthias*, g. def. and *nuttingi* diagnosed ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, pp. 34 & 35. *X. xantusii*, notes ; NOBILI, Boll. Mus. Torino xvi, No. 215, p. 34.
- Xanthodius*, g. def. and *parvulus* diagnosed ; RATHBUN, Bull. U. S. Fish Comm. 1900, ii, p. 27.
- Xiphocaris*, g. and *elongata* diagnosed ; RATHBUN, t. c., p. 118.
- Xiphopeneus*, g. and *kroyeri* diagnosed ; RATHBUN, t. c., p. 102.

SCHIZOPODA.

- The following papers deal with *Schizopoda* :—Nos. 64, 100, 163, 164, 188.
- Amblyops crozetii*, Bipolar distribution ; OHLIN, Ann. Nat. Hist. (7) vii, p. 371.
- Gasocaris*, n. g., def. ; FRITSCH, Zool. Anz. xxiv, p. 505.
- Heteromysis spinosus*, San Pedro, Calif. ; HOLMES, P. Calif. Ac. vii, p. 225, n. sp.
- Myndopsis elongata*, San Pedro, Calif. ; HOLMES, t. c., p. 226. *M. serraticauda*, Mediterranean, ♀ descr. ; WALKER, J. Linn. Soc. xxviii, p. 293, pl. xxvii, figg. 1-6 : n. spp.
- Mysis costata*, San Pedro ; HOLMES, P. Calif. Ac. vii, p. 221, n. sp.
- Neomysis franciscorum*, San Francisco Bay ; HOLMES, t. c., p. 223, n. sp.
- Siriella pacifica*, San Diego, Calif. ; HOLMES, t. c., p. 227, n. sp.
- Thysanoessa spinifera*, Fort Bragg, Calif. ; HOLMES, t. c., p. 229, n. sp.

STOMATOPODA.

- The following papers deal with *Stomatopoda* :—Nos. 16, 160.
- Gonodactylus chiragra*, notes and varieties ; BORRADAILE in WILLEY's Zool. Res., Pt. iv, p. 400.

- G. festa*, Darien; NOBILI, Boll. Mus. Torino xvi, No. 415, p. 53, n. sp.
Lysiosquilla biminensis var. *pacificus* nov., descr. of ♂; BORRADAILE
 in WILLEY's Zool. Res., Pt. iv, p. 403.
Protosquilla cerebralis, notes, p. 399, *trispinosa*, diagnosis, p. 400; BORRA-
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EDRIOPHTHALMA.

CUMACEA (=SYMPODA, Stebbing).

The following papers deal with *Cumacea*:—Nos. 164, 214.

- SYMPODA, nom. nov. for CUMACEA; STEBBING in WILLEY's Zool. Res., Pt. v,
 p. 609.
Campylaspis sulcata, occurrence in the Clyde; T. SCOTT, Ann. Scott. Nat.
 Hist. x, p. 54.
Diastylis spinulosa, notes; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 47,
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 Ann. Scott. Nat. Hist. x, p. 54.
Diastylopsis resima, occurrence in Scottish waters; T. SCOTT, t. c., p. 54.
Leptostylis villosa, notes; T. SCOTT, Rep. Fish. Board Scotland xix (iii),
 p. 275, pl. xviii, fig. 41.
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 4, No. 12, p. 41, fig. 9 a-c, n. sp.
Nannastacus ossiani, New Britain, ♂, p. 612, pl. lxiv A, *georgi*, New
 Britain, p. 613, pl. lxiv B; STEBBING in WILLEY's Zool. Res., Pt. v,
 n. spp.

ISOPODA AND ANISOPODA.

- The following papers deal with *Isopoda*:—Nos. 15, 22, 23, 25, 53-55,
 59, 157, 164, 169, 182, 183, 195, 203, 214, 228-232, 239, 250.
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Egathoa excisa, Galapagos Is., descr.; RICHARDSON, P. Washington Ac.
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Alcirona insularis, notes on specimens from New Britain; STEBBING in
 WILLEY's Zool. Res., Pt. v, p. 637.
Alloniscus maldivensis, Maldive Ids.; BORRADAILE in GARDINER's Fauna
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Apeudes multicarinatus, off Port Hacking, N.S.W.; WHITELEGGE, Mem.
 Austral. Mus. iv, p. 204, n. sp.
Arcturus hystrix, note and figg.; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12,
 p. 30, fig. 6 a-r. *A. baffini* and *feildeni*=varr. of one sp.; ORTMANN,
 P. Ac. Philad. 1901, p. 156.
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cificum belongs to g. *Cubaris*; BORRADAILE, P. Z. S. 1901 (i) p. 325.
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 p. 109. *A. versicolor* and varr.; VERHOEFF, Zool. Anz. xxiv, p. 140.
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- A. granulatum peloponnesiaca*, Peloponnesus; VERHOEFF, t. c., p. 139, n. subsp.
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- Bathynomus giganteus*, adaptation to life at great depths and segmentation of the appendages; BOUVIER, C.R. Ac. Sci. cxxxii, p. 643.
- Cæcosphaeroma bericum*, Berici near Vicenza; FABIANI, Bull. Soc. ent. Ital. xxxiii, p. 171, pl. iii, Grotto of Baume-les-Messieurs, Jura; VIRÉ & ALZONA, Bull. Mus. Paris 1901, p. 346 : n. sp.
- C. faucheri*, descr. and fig.; VIRÉ, Bull. Mus. Paris vi, p. 284.
- Calathura gigas*, off Port Jackson; WHITELEGGE, Mem. Austral. Mus. iv, p. 225, n. sp.
- C. brachiata*, notes; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 17, figg. 1 a & b.
- Cassidina laticauda*, off Coogee; WHITELEGGE, Mem. Austral. Mus. iv, p. 238, n. sp.
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- Cylisticus plumbeus*, Salo; VERHOEFF, Zool. Anz. xxiv, p. 73, n. sp.
- Cyphoniscellus herzegowinensis* = *Cyphoniscus herzegowinensis*; VERHOEFF, t. c., p. 144.
- Cyproniscus crossophori*, in *Crossophorus africanus*, off Cape St Blaize, S. Africa; STEBBING, Knowledge xxiv, 1901, p. 100, n. sp.
- Echinarmadillidium*, n. g. def.; VERHOEFF, Zool. Anz. xxiv, p. 34.
- Echinopleura aculeata*, notes; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 272, pl. xxviii, fig. 40.
- Ethelum americanum*, descr.; BUDDE-LUND, Ent. Meddel. (2) i, p. 90, pl. iii, figg. 10-12.
- Eubelum stipulatum*, p. 71, pl. i, figg. 1-16, *lubricum*, p. 72, pl. ii, figg. 1-8, *pila*, p. 72, pl. i, figg. 17-20, *quietum*, p. 73, pl. ii, figg. 12-14, *dollfusi*, p. 74, pl. ii, figg. 15-18, *ignavum*, p. 75, pl. ii, figg. 9-11, descr.; BUDDE-LUND, t. c.
- Eurycope hansenii*, Arctic; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 34, figg. 7 a-f, n. sp.
- Gnathia grimaldii*, p. 240, *richardi*, p. 242, *sarsi*, p. 244; DOLLFUS, Bull. Soc. zool. France xxvi. *G. aureola*, Lifu; STEBBING in WILLEY's Zool. Res., Pt. v, p. 627, pls. lxxv A & lxxiv E : n. spp.
- G. elongata*, notes; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 20, fig. 2.
- Hansenolana*, n. g. of Isopoda for *anisopons*, Isle of Pines; STEBBING in WILLEY's Zool. Res., Pt. v, p. 634, pl. lxxviii A, n. sp.

- Haplophthalmus dollfusi*, near Arco; VERHOEFF, Zool. Anz. xxiv, p. 78, n. sp.
- Hiallum hilgendorfi*, descr.; BUDDE-LUND, Ent. Meddel. (2) i, p. 89, pl. v, figg. 11-22.
- Hysura spinicauda*, Mediterranean, descr.; WALKER, J. Linn. Soc. xxviii, p. 295, pl. xxvii, figg. 7-11, n. sp.
- Ianthe*, see *Tole*, p. 40.
- Idotea japonica*, Hakodate Bay, Japan; RICHARDSON, P. U. S. Mus. xxii, p. 131, n. sp.
- Pygarachna bergendali*, Arctic; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 37, figg. 8a-d, n. sp.
- Leptochelia lifuensis*, Isle of Pines, ♂, p. 616, pl. lxxv B, ♀, p. 617, p. lxxv C; STEBBING in WILLEY's Zool. Res., Pt. v, n. sp.
- L. minuta*, notes; STEBBING, t. c., p. 615.
- Leptognathia longiremis*, var. descr.; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 269, pl. xviii, figg. 30-38.
- Ligidium bosniense*, Tröbevic, *herzegovinsae*, Jablanica, *germanicum*, Bavaria; VERHOEFF, Zool. Anz. xxiv, pp. 40 & 41, n. spp.
- Macrostylis spinifera*, notes; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 272, pl. xviii, fig. 39.
- Mesarmadillo tuberculatus*, p. 77, pl. ii, figg. 19-27, *albicornis*, p. 79, pl. iii, figg. 1-9, *quadrinaculatus*, p. 80, pl. iii, figg. 13-17, descr.; BUDDE-LUND, Ent. Meddel. (2) i.
- Metoponorthus sinensis*, descr. and figg.; DOLLFUS in HORVÁTH's Zool. Ergebn. Zichy ii, p. 373, n. sp.
- M. dalmatinus*, Dalmatia; VERHOEFF, Zool. Anz. xxiv, p. 71, n. sp.
- M. pruinosis corcyraeus*, Corfu; VERHOEFF, t. c., p. 72, n. subsp.
- Munnopsis typica*, notes; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12, p. 31.
- Oniscus asellus*, spermatogenesis; NICHOLLS, Amer. Natural. xxxv, p. 919.
- O. murarius*, var. *latus* nov. Vallombrosa; VERHOEFF, Zool. Anz. xxiv, p. 418.
- Pagurapseudes*, n. g. of *Apsseudidae*, def., p. 209, for *spinipes*, off Cape Three Points, N.S.W.; WHITELEGGE, Mem. Austral. Mus. iv, p. 210, n. sp.
- Paranthura*, g. def., *lifuensis*, Lifu; STEBBING in WILLEY's Zool. Res., Pt. v, p. 623, pl. lxxv B. *P. ciliata*, off Wata Mooli, p. 216, *involuta*, off Botany Bay, p. 220; WHITELEGGE, Mem. Austral. Mus. iv : n. spp.
- Paraphiloscia*, n. g. of *Oniscidae* for *stenostoma*, New Britain; STEBBING in WILLEY's Zool. Res., Pt. v, p. 648, pl. lxxix C, n. sp.
- Periscyphops silvanus*, p. 82, pl. iv, figg. 1-29, *tenellus*, p. 83, pl. iii, figg. 25-27, *bizonatus*, p. 84, pl. iii, figg. 18-24, *gibbosus*, p. 85, pl. v, figg. 23-25, *squamatus*, p. 86, pl. v, figg. 1-6, *squamosus*, p. 87, pl. v, figg. 7-10, descr.; BUDDE-LUND, Ent. Meddel. (2) i.
- Philoscia lifuensis*, Lifu; STEBBING in WILLEY's Zool. Res., Pt. v, p. 648, pl. lxxix B. *P. gravesensis*, Ombla, p. 145, *attica*, Argos, p. 419, *penteliconensis*, Pentelikon, p. 419, *aristotelis*, Aegina, p. 420, *italica*, Marin, p. 420, *illyrica*, Abbazia, p. 421; VERHOEFF, Zool. Anz. xxiv : n. spp.
- P. muscorum dalmatia*, Dalmatia; VERHOEFF, t. c., p. 146, n. subsp.
- P. muscorum*, var. *trifasciata*, Vallombrosa; VERHOEFF, t. c., p. 419.
- Platyarthrus dollfusi*, Mostar; VERHOEFF, t. c., p. 78, n. sp.
- Pleurocope*, n. g. of *Munnidae*, defined for *dasyura*, Mediterranean, descr.; WALKER, J. Linn. Soc. xxviii, p. 297, pl. xxvii, figg. 12-18, n. sp.
- Pleurocyphoniscus*, n. g. def., p. 144, *bertkaui*, N. Tirol, p. 145; VERHOEFF, Zool. Anz. xxiv, n. sp.
- Porcellio maldivensis*, Maldive Ids.; BORRADAILE in GARDNER's Fauna and Geog. of the Maldive and Laccadive Archipelagoes i, p. 99, figg. 22.
- P. horvathi*, E. Carpathians; DOLLFUS, Termes. Fuzetek xxiv, p. 144.
- P. moebiusii*, Omblauffer near Ragusa, p. 38, *herzegoviniensis*, Ubli, p. 69, *recurvatus*, Bosnia, p. 143, *pseudopullus*, Mostar, p. 143, *naupli-*

- ensis*, Patras, p. 403, *fumanus*, Fiume, p. 403, *cattarensis*, Cattaro, p. 405, *fossuliger*, Ombla, *buddelundi*, Coimbra, p. 406, *molleri*, Coimbra, p. 406, *phaleronensis*, Phaleron, p. 497, *dispar*, Coimbra, p. 407; VERHOEFF, Zool. Anz. xxiv : n. spp.
- P. rathkei phaeacorum*, Herzegovina, p. 71, *ratzeburgi illyricus*, Fiume, p. 417, *pictus romanorum*, Pisa, p. 418; VERHOEFF, t. c., n. subsp.
- Renocila periophthalmi*, Lifu; STEBBING in WILLEY's Zool. Res., Pt. v, p. 641, pl. lxxviii B, n. sp.
- Schismadillidium*, n. subg. of *Armadillidium*, def.; VERHOEFF, Zool. Anz. xxiv, p. 37.
- Schizidium*, n. g. def.; VERHOEFF, t. c., p. 36.
- Sphaeroma quoyana*, p. 239, *verrucauda*, p. 240, Wood-Borers; HEDLEY, Rep. Austral. Ass. 8th Meeting, 1891.
- Synidothea bicuspidata*, p. 27, figg. 5 a & b, *nodulosa*, p. 29, notes; OHLIN, Bih. Svenska Ak. xxvi, 4, No. 12.
- Tanais stanfordi*, Clipperton Is., Lagoon, descr. and. fig.; RICHARDSON, P. Washington Ac. iii, p. 565, n. sp.
- Titanethes absoloni*, p. 259, *nodifer*, p. 260, Moravia, Cave; VERHOEFF, Zool. Anz. xxiv, n. spp.
- Tole*, nom. nov. for *Ianthe* (preoccupied), p. 157, *libbeyi*, Cape Alexander, N. Greenland; ORTMANN, P. Ac. Philad. 1901, p. 157, n. sp.
- Trichoniscus matulicii*, S. Herzegowina, p. 74, var. *stygiavagus*, ibid. p. 75, *prenjanus*, N. Siebenbürgen, p. 75, *bosniensis*, Bosnia, p. 75, *thieli*, Sarajevo, p. 76, *omble*, Omblauffer, *tirolensis*, S. Tirol, p. 76, *transsilvanicus*, Kronstadt, p. 77, *simplicifrons*, Herzegowina, p. 147, *corcyraeus*, Corfu, p. 148, *germanicus*, German Bohemia, p. 149; VERHOEFF, Zool. Anz. xxiv, n. spp.
- T. marginalis* = *T. vividus* var. *marginalis*; VERHOEFF, t. c., p. 149.
- Typhlotanais brevicornis*, occurrence in the Moray Firth; T. SCOTT, Ann. Scott. Nat. Hist. x, p. 54.

AMPHIPODA.

- The following papers deal with *Amphipoda*:—Nos. 31, 32, 144, 190, 194, 243.
- Acanthoscina*, n. g. of *Scinide*, Plankton, VOSSELER, Mt. Nat.-Kab. Stuttgart xvii, p. 114, for *serrata*, p. 114, pl. x, figg. 1-10, and Zool. Anz. xxiii, pp. 674 & 675, n. sp.
- Allorchestes aquilina* (= *Hyale aquilina* Della Valle), notes and figg., pl. xxvii, fig. 19, *plumicornis* ♂ (= *Nicea plumicornis* Heller, ♀), notes and fig., pl. xxvii, figg. 20 & 21; WALKER, J. Linn. Soc. xxviii, p. 299.
- Amphilochus neapolitanus*, notes on structure and taxonomy of this and allied spp. (*A. brunneus* Della Valle, and *A. melanops* A. O. Walker, to be referred to this species); WALKER, t. c., p. 301.
- Amphithoe longimana*, habits and natural history; HOLMES, Biol. Bull. ii, p. 165.
- Atylodes gabrieli*, Streamlet at Thorpdale, Gippsland, Victoria; SAYCE, P. Soc. Victoria xiii, p. 230, pls. xxxvii & xxxviii, n. sp.
- Calocaris macandrea*, occurrence in the Firth of Forth; T. SCOTT, Ann. Scott. Nat. Hist. x, p. 240.
- Caprella erethizon*, St Marcouf Isles, Normandy; MAYER, Bull. Soc. Rouen 1900, p. 239, n. sp.
- C. linearis*, diff. from *C. septentrionalis*; ORTMANN, P. Ac. Philad. 1901, p. 155.
- Dexamine spinosa*, see *Paratylus guttatus*, p. 41.
- Euprimno macropus*, Plankton; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii, p. 87, pl. viii, fig. 21.

- Euthemisto compressa*, p. 81, pl. viii, figg. 11-17, *bispinosa*, p. 84, pl. viii, figg. 3-10, Plankton; VOSSELER, t. c.
- Gammarus rhipidiophorus*, Galite, descr. and figg.; CHEVREUX, Bull. Soc. zool. France xxvi, p. 216.
- G. australis*, Dandenong Creek, Bayswater, Vic., descr.; SAYCE, P. Soc. Victoria xiii, p. 234, pl. xxxix, n. sp.
- Hyale aquilina*, see *Allorchestes aquilina*, p. 40.
- Hyalella australis*, Lake Petrach, Tasmania, descr.; SAYCE, P. Soc. Victoria xiii, p. 226, pl. xxxvi, n. sp.
- Hyperia atlantica*, p. 67, pl. vi, figg. 5-15, *macrophthalma*, p. 70, pl. vi, figg. 16-25, *hydrocephala*, p. 74, pls. vi, figg. 26-28, vii, figg. 1-5, Plankton; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii, n. spp.
- H. fubrei*, p. 58, pl. v, figg. 5-15, *sibaginis*, p. 60, pl. vii, figg. 6-20, *luzonii*, p. 64, pl. v, figg. 16-28, *thoracica*, p. 73, pl. vi, figg. 1-4, Plankton; VOSSELER, t. c.
- Leucothoë euryonyx*, Mediterranean, descr.; WALKER, J. Linn. Soc. xxviii, p. 302, pl. xxvii, figg. 24-26, n. sp.
- Melphadippa*, notes on a n. sp. from the Mediterranean, but no name given; WALKER, t. c., p. 304, pl. xxvii, figg. 29 & 30, n. sp.
- Metaphoxus pectinatus*, must not be united with *Phoxus simplex*, Sp. Bate; WALKER, t. c., fig. 299.
- Nicea plumicornis*, see *Allorchestes plumicornis*, p. 40.
- Niphargus plateaui*, France, subterranean waters, descr., var. *elongatus*, nov. Croisic, p. 168, var. *robustus*, nov. Loire, descr. and figg., pp. 173 & 234, *ladmiraulti*, Loire, p. 174, descr. and figg.; CHEVREUX, Bull. Soc. zool. France xxvi, n. spp.
- N. virei*, descr. and figg., p. 197, *kochianus*, *fontanus*, notes, p. 201; CHEVREUX, t. c. *N. montanus*, see *Unimelita*.
- Parametopa*, n. g. of *Stenothoidæ* for *kervillei*, Omonville-la-Rogue; CHEVREUX, Bull. Soc. Rouen 1900, p. 231, pl. iii, n. sp.
- Paraphronima gracilis*, p. 95, *crassipes*, p. 97, pl. viii, figg. 22-26, Plankton; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii.
- Parathemisto obliqua*, Plankton; VOSSELER, p. 80, pl. vii, figg. 21-25, viii, figg. 1 & 2.
- Paratylus guttatus*, notes and fig., wrongly referred to *Dexamine spinosa* by Della Valle; WALKER, J. Linn. Soc. xxviii, p. 304, pl. xxvii, figg. 27 & 28.
- Phoxus simplex*, see *Metaphoxus pectinatus*.
- Phronima affinis*, Plankton, p. 20, pl. i, figg. 12-16, *curvipes*, Plankton, p. 27, pl. iii, figg. 1-3, *stebbingii*, Plankton, p. 36, pl. iv, figg. 4-10; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii, n. spp.
- P. sedentaria*, p. 14, pl. i, figg. 1-11, *atlantica*, p. 21, pl. ii, figg. 1-10, var. *solitaria*, p. 23, pl. ii, fig. 5, *pacifica*, p. 29, pl. iii, figg. 4-7, *colletti*, p. 32, pl. iii, figg. 8-10, iv, figg. 1-3, Plankton; VOSSELER, t. c.
- Phronimella elongata*, Plankton; VOSSELER, t. c., p. 40, fig. in text.
- Phronimopsis spinifera*, Plankton; VOSSELER, t. c., p. 52, pl. v, figg. 1-4.
- P. tumida*, VESTER, Inaug. Diss. Leipzig [Title No. 234], n. sp.
- Phrosina semilunata*, Plankton; VOSSELER, t. c., p. 89, pl. viii, figg. 18-20.
- Pseudoniphargus*, n. g. of *Amphipoda* for *africanus*, Algeria, descr. and figg.; CHEVREUX, Bull. Soc. zool. France xxvi, p. 211, n. sp.
- Scina edwardsi*, p. 103, *chuni*, *clausi*, p. 104, *bovullii*, p. 105, pl. ix, figg. 8-17, *marginata*, p. 110, *tullbergi*, *pacifica*, p. 113, Plankton; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii.
- S. spinosa*, p. 108, pl. x, figg. 11-14, *lamperti*, p. 110, pl. ix, figg. 1-7, Plankton; VOSSELER, t. c., n. spp.
- Unimelita*, n. g. of *Gammaridae*, def., p. 237, for *spenceri*, Lake Petrach, Tasmania; SAYCE, P. Soc. Victoria xiii, p. 238, pl. xl, n. sp. [*Niphargus montanus* S. M. Thomson, is also placed here by Sayce.]

- Vibilia gibbosa*, p. 119, pls. x, figg. 16-19, xi, figg. 1-5, *longipes*, p. 123, *viatrix*, *australis*, *propinqua*, p. 124, Plankton; VOSSELER, Mt. Nat.-Kab. Stuttgart xvii.
- V. cultripes*, Plankton; VOSSELER, t. c., p. 121, pl. xi, figg. 6-18, n. sp.

LEPTOSTRACA.

See Title No. 164.

ENTOMOSTRACA.

See Titles Nos. 45, 47, 199-201, 203, 204, 216, 217.

PHYLLOPODA.

The following papers deal with *Phyllopoda*:—Nos. 12, 46, 51, 61, 75, 86, 103, 104, 107, 129-132, 190, 191, 219.

BRANCHIOPODA.

- Apus cancriformis*, occurrence in pools on the Bingol Dagħ, Armenia, at height of 10,000 ft.; CAVALIER, Ann. Nat. Hist. (7) viii, p. 160. *A. granarius*, descr.; SARS, Annuaire Mus. St. Petersb. vi, No. 1, p. 133, pls. i & ii, 1-12.
- Artemia salina*, notes; SARS, t. c., p. 150, pl. v.
- Branchinecta orientalis*, Lake Chuntu-noi, E. Mongolia; SARS, t. c., p. 144, pl. iii, n. sp.
- Branchipodopsis affinis*, E. Mongolia; SARS, t. c., p. 149, pl. iv, n. sp.
- Branchipus stagnalis*, occurrence at a height of 10,000 ft. in pools on the Bingol Dagħ, Armenia; CAVALIER, Ann. Nat. Hist. (7) viii, p. 160.
- Chirocephalus diaphanus*, var. *croatica*, nov., Croatia; STEUER, Ann. Hofmus. Wien xiii, p. 174, pls. vi & vii.
- Esteria davidi*, p. 152, pl. vi, *sahlbergi*, p. 153, pl. vii, notes; SARS, Annuaire Mus. St. Petersb. vi, No. 1.
- E. propinqua*, E. Mongolia; SARS, t. c., p. 155, pl. viii, figg. 1-8. *E. crinita*, Massai Nyika; THIELE, Zool. Jahrb. Syst. xiii, p. 568, pls. xxxvii, figg. 15-20, xxxviii, figg. 21-25 : n. spp.
- †*E. anomala*, Jurassic, Enon Conglomerate, Heidelberg, S. Africa, descr.; JONES, Geol. Mag. (iv) viii, p. 352. †*E. hauchecornei*, p. 36, pl. i, fig. 6, *nucula*, p. 61, pl. i, fig. 7, Old Red Sandstone?; BEYSCHLAG & FRITSCH, Abh. Preuss. geol. Landesanst. x : n. spp.
- Lepidurus macrurus*, notes; SARS, Annuaire Mus. St. Petersb. vi, No. 1, p. 143, pl. ii, figg. 13-20.
- Leptestheria tenuis*, E. Mongolia; SARS, t. c. p. 157, pl. viii, figg. 9-17, n. sp.
- Limnetis zichyi*, Russia; DADAY in HORVÁTH's Zool. Ergebn. Zichy ii, p. 435, pl. xviii, figg. 11-15, xix, figg. 1-9, n. sp.
- L. wahlbergi*, descr.; THIELE, Zool. Jahrb. Syst. xiii, p. 572, pl. xxxviii, fig. 26-38.
- Streptocephalus lamellifer*, Massai Nycke; THIELE, Zool. Jahrb. Syst. xiii, p. 565, pl. xxxvii, figg. 1-14, n. sp.

CLADOCERA.

- Acantholeberis*, discussed, p. 373, *curvirostris*, descr.; LILLJEBORG, Clad. Sueciae, p. 375, pls. lvii, fig. 17, lviii, figg. 1-17.

- Acroperus neglectus*, Sweden; LILLJEBORG, t. c., p. 425, pl. lxiv, figg. 11-21, n. sp.
- A., discussed, p. 416, *harpe*, p. 418, pls. lxiii, figg. 14-24, lxiv, figg. 1-10, *angustatus*, p. 429, pls. lxiv, figg. 22-27, lxv, figg. 1-4, descr.; LILLJEBORG, t. c. *A. leucocephalus*, notes; STEUER, Zool. Jahrb. Syst. xv, p. 122, pl. iv, fig. 13.
- Aloa macrorhyncha*, notes; DADAY, Termes. Fuzetek xxiv, p. 39, figg. 17a-b. *A. glacialis*, ♀ descr.; FORDYCE, Tr. Amer. Micr. Soc. xxii, p. 164. *A. affinis*, p. 48, pl. ix, figg. 1a-d, *guttata*, p. 51, pl. ix, figg. 3 & 3a, *rectangula*, p. 52, *intermedia*, p. 53, pl. ix, figg. 4 & 4a, notes; SÄRS, Arch. Naturv. Christian. xxiii, No. 3. *A. coronata*, notes; STEUER, Ann. Hofmus. Wien xiii, p. 184, pl. viii, fig. 3. *A. affinis*, p. 123, pl. iv, figg. 15-16c, *costata*, *guttata*, p. 124, pl. v, figg. 17 & 18, *pulchra*, p. 124, pl. v, fig. 19, *rostrata*, p. 125, pl. v, fig. 20, *falcata*, p. 125, pl. v, fig. 21; STEUER, Zool. Jahrb. Syst. xv. [See also Dadaya, p. 45.]
- A. *iheringi*, São Paulo, p. 49, pl. ix, figg. 2a-c, *monacantha*, São Paulo, p. 54, pl. ix, figg. 5a-b, *glabra*, Argentina, p. 55, pl. ix, figg. 6 & 6a, *verrucosa*, São Paulo, p. 56, pl. ix, figg. 7 & 7a; SÄRS, Arch. Naturv. Christian. xxiii, No. 3, n. spp.
- Alonella rostrata*, descriptive notes; FORDYCE, Tr. Amer. Micr. Soc. xxii, p. 166. A., discussed, p. 509, *excisa*, p. 510, pl. lxxii, figg. 9-19, *exigua*, p. 512, pl. lxxii, figg. 20-26, *nana*, p. 517, pl. lxxii, figg. 27-31, descr.; LILLJEBORG, Clad. Sueciæ. *A. karua*, p. 59, pl. x, figg. 2a-d, *diaphana*, p. 60, pl. x, figg. 3a-b, *clathratula*, p. 62, pl. x, figg. 5 & 5a, notes; SÄRS, Arch. Naturv. Christian. xxiii, No. 3.
- A. *lineolata*, São Paulo, p. 58, pl. x, figg. 1 & 1a, *dentifera*, São Paulo, p. 61, pl. x, figg. 4 & 4a, *sculpta*, Ipiranga, p. 63, pl. x, figg. 6 & 6a, *nitidula*, Itatiba, p. 64, pl. x, figg. 7 & 7a; SÄRS, t. c., n. spp.
- Alonopsis*, discussed, p. 432, *elongata*, p. 434, pl. lxv, figg. 5-20, *latissima*, p. 442, pl. lxvi, figg. 1-7, descr.; LILLJEBORG, Clad. Sueciæ. [See also *Pseudalona*, p. 47.]
- A. *ambigua*, nom. nov. for *elongata* Daday et Dees; LILLJEBORG, t. c., p. 440, pl. lxv, figg. 21-24.
- Anchisotropus*, discussed, p. 585, *emarginatus*, descr.; LILLJEBORG, t. c., p. 587, pl. lxxix, figg. 7-21.
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- Jahrb. Syst. xv, p. 136, pl. vi. *B. longirostris*, notes; STEUER, t. c., p. 121, pl. iii, figg. 9a & b.
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- Bunops*, discussed, p. 318, *serricaudata*, descr.; LILLJEBORG, Clad. Sueciæ, p. 321, pl. lii, figg. 11-14.
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- C. similis*, Argentina; SARS, Arch. Naturv. Christian. xxiii, No. 3, p. 89, pl. xii, figg. 4 & 4a, n. sp.
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- C. pigroides*, Sweden; LILLJEBORG, Clad. Sueciæ, p. 571, pl. lxxviii, figg. 10-14. *C. eurynotus*, São Paulo, p. 70, pl. xi, figg. 3a-c, *pubescens*, Argentina, p. 71, pl. xi, figg. 4a-c; SARS, Arch. Naturv. Christian. xxiii, No. 3 : n. spp.

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- Diaphanosoma brachyurum*, notes; BURCKHARDT, Rev. Suisse Zool. viii, p. 432, pl. xviii, figg. 5-14. *D. sarsi*, notes; DADAY, Termes. Fuzetek xxiv, p. 41, figg. 19a & b. *D. singalense*, var. *intermedium*, nov., Siberia, p. 438, pl. xix, figg. 11-16, *brachyurum*, p. 440, pl. xx, figg. 1-7; DADAY in HORVÁTH's Zool. Ergebn. Zichy ii. *D. brandtianum*, descr.; FORDYCE, Tr. Amer. Micr. Soc. xxii, p. 140, pl. xxiii, fig. 9. *D.*, g. def., p. 35, *brachyurum*, p. 36, pls. iii, figg. 6-13, iv, figg. 1-4, *leuchtenbergianum*, p. 42, pl. iv, figg. 5-11; LILLJEBORG, Clad. Sueciae.
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- Drepanothrix*, discussed, p. 366, *dentata*, descr.; LILLJEBORG, Clad. Sueciae, p. 368, pl. lvii, figg. 2-16.
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- Ascomyzon thompsoni*, off Spanish Head, Isle of Man, ♀ descr.; SCOTT, A., Fauna Liverp. Bay Rep. v, p. 81, pl. v, figg. 16-26, n. sp.
- Astrocheres echinicola*, notes; T. SCOTT, Rep. Fish. Board Scotland xviii, Pt. iii, p. 399, pl. xiv, figg. 33-36.
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- Botryllophilus ruber*, descr.; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 242, pl. xvii, figg. 15-27.
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- Cyclopina longifurcata*, in the stomach of a small Haddock, off Shetland Is.; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 240, pl. xvii, figg. 5-14, n. sp.
- Cyclindropsyllus minor*, descr.; T. SCOTT, op. cit. xviii, Pt. iii, p. 394, pl. xiv, figg. 23-32.
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- Hæmocera roscovita*, Roscoff; MALAQUIN, Arch. Zool. exp. (3) ix, p. 110, n. sp.
- Idya elongata*, from Mussel Beds near Morcambe; SCOTT, A., Fauna Liverp. Bay Rep. v, p. 76, pls. iv, figg. 21-24, v, figg. 1-5, n. sp.
- Jonesiella brucei*, Arctic, deep water to the E. of Hope Is., ♀ descr.; SCOTT, T. & A., Ann. Nat. Hist. (7) viii, p. 344, pl. iii, n. sp.
- Laophontodes bicornis*, off Port Erin; SCOTT, A., Fauna Liverp. Bay Rep. v, p. 72, pls. iii, figg. 24 & 25, iv, figg. 1-7, n. sp.
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- Oralien asellinus*, notes; T. SCOTT, Rep. Fish. Board Scotland xviii, p. 163, pl. vii, figg. 16-18.
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- Pandarus bicolor*, notes; T. SCOTT, Rep. Fish. Board Scotland xviii, Pt. iii, p. 157, pl. vi, figg. 33-38.
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- Paradichia typica*, ♂ observed for the first time; ORTMANN, P. Ac. Philad. 1901, p. 154.
- Parartotrogus richardi*, var. *arctica* nov., E. of Hope Is., descr.; SCOTT, T. & A., Ann. Nat. Hist. (7) viii, p. 352, pl. vi.
- Pseudocalanus*, g. def., p. 19, *elongatus*, descr.; SARR, Crust. Norway iv, p. 20, pls. x & xi. *P. pygmaeus*, absence of males in specimens collected in Arctic Seas; SCOTT, T. & A., Ann. Nat. Hist. (7) viii, p. 339.
- Pseudolaophonte*, n. g. def., for *aculeata*, off Spanish Head, Isle of Man; SCOTT, A., Fauna Liverp. Bay Rep. v, p. 69, pl. iii, figg. 7-23, n. sp.
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- Sphyrion laevigatum*, descr.; STEBBING, Rep. Mar. Biol. Cape of Good Hope 1898, p. 197.
- Spinocalanus*, g. def. and *longicornis* descr.; SARR, Crust. Norway iv, p. 22, pl. xii.
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- T. malleolata*, notes and descr.; T. SCOTT, Rep. Fish. Board Scotland xviii, Pt. iii, p. 391, pl. xiv, figg. 9-17.
- Thaumatoessa armoricana*, degeneration of structure; MALAQUIN, Bull. Soc. ent. France 1901, p. 216.

- Thersites gasterostei*, ♀ descr.; T. SCOTT, t. c., p. 146, pl. v, figg. 1-7.
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OSTRACODA.

The following papers deal with *Ostracoda*:—Nos. 30, 30A, 88-92, 113, 114, 151-154, 192, 211, 225, 226.

- Amphicypris*, n. g. of *Cyprididae*, for *nobilis*, Argentina; SARS, Arch. Naturv. Christian. xxiv, No. 1, p. 18, pl. iv, n. sp.
Asterope arthuri, New Britain, ♀; STEBBING, in WILLEY's Zool. Res. Pt. v, p. 660, pl. lxxii A, n. sp.
 †*Beyrichia tuberculata*, var. *lineato-tuberculata*, Silurian, Mulde, Gotland; CHAPMAN, Ann. Nat. Hist. (7) vii, p. 161, pl. iii, fig. 11.
 †*B. muldensis*, Silurian, Mulde, Gotland; CHAPMAN, t. c., p. 150, pl. iii, fig. 10. †*B. kirkbyana*, Carboniferous, Siberia; JONES, Geol. Mag. (iv) viii, p. 435 : n. spp.
Candona sucki, Brandenburg, descr.; HARTWIG, SB. Ges. naturf. Berlin 1901, p. 8. *C. angulata*, R. Ryck, Greiswald, p. 18, pl. i, figg. 1-17, *brevis*, R. Ryck, p. 20, pls. iv, figg. 5-20, v, figg. 26-30, *dentata*, Thüringen, p. 21, pl. vi, figg. 1, 8-13, *rara*, Greiswald, p. 22, pl. v, figg. 1-3, 14-16, *hartwigi*, Berlin, p. 24, pl. v, figg. 4, 15-17, 20-22, *parallela*, Greiswald, p. 25, pl. v, figg. 5, 6, 22-25, *fallax*, Berlin, p. 27, pl. iv, figg. 2, 11-15, 17, *insculpta*, Berlin, p. 28, pls. iii, figg. 15, 16, 21, 22, iv, figg. 1, 7-10; MÜLLER, Zoologica xii (xxx) : n. spp.
C. rostrata Brady and Norman non = *C. rostrata* G. W. Müller; HARTWIG, Zool. Anz. xxiv, p. 240. *C. candida*, p. 15, pl. ii, figg. 1-3, 7-12, *weltneri*, p. 16, pl. iii, figg. 3, 4, 13-19, *neglecta*, p. 17, pl. ii, figg. 4-6, 13-18, *mülleri*, p. 19, pl. iii, figg. 1, 2, 6-12, *rostrata*, p. 23, pl. v, figg. 2, 3, 7-14, *pubescens*, p. 26, pl. iv, figg. 3, 4, 6, 16, 18, 19, 21, 22, *fabaeformis*, p. 29, pl. vii, figg. 1-7, 12, 13, *fragilis*, p. 31, pl. vii, figg. 8-11, 14-17, 19, *acuminata*, p. 32, pl. viii, figg. 4-13, *hyalina*, p. 33, pl. viii, figg. 14-21, *balatonica*, p. 34, pls. vii, figg. 18, 20, 21, 23, 24, viii, figg. 1-3, *protzi*, p. 35, pl. vi, figg. 4, 5, 17-22, descr.; MÜLLER, Zoologica xii (xxx).
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- Itatiba, p. 35, pl. viii, figg. 3 & 4, *mucronata*, Itatiba, p. 36, pl. viii, figg. 5 & 6; Sars, Arch. Naturv. Christian. xxiv, No. 1, n. spp.
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GIGANTOSTRACA

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2. DISTRIBUTION (GENERAL).

Discussion of the *Olenellus* Fauna; MATTHEW (22).

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III. DISTRIBUTION.

Lower Cambrian, York County, Pennsylvania: *Trilobita*, n. sp. of *Olenellus*; WANNER (38).

Cambrian: Blue Hills, Boston: *Trilobita*; CROSBY (7). Cape Breton: 4 n. spp. of *Trilobita*; MATTHEW (23). Missouri: n. g. of *Eurypterida*, etc.; BEECHER (2 & 3).

Between Cambrium and Silurian : *Trilobita* ; POMPECKJ (32).

Silurian, Belgium : *Trilobita* ; MALAISE (20). Melbourne : *Trilobita*, n. sp. of *Cyphaspis* ; GREGORY (15). Niagara Falls : *Gigantostroaca* ; GRABAU (14). Norway : *Gigantostroaca* ; KIAER (16). Pentland Hills : *Eurypterida* incl. n. g. and 6 n. spp. ; LAURIE (18).

Lower Devonian, Singhofen : *Trilobita*, n. sp. of *Homalonotus* ; SCHLÜTTER (36) p. 180.

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Value of certain characters in the Classification of *Trilobita* ; LEBESCONTE (17).

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†*Agraulos quadrangularis*, descr. ; CROSBY, Pap. Boston Soc. iv, p. 674, pls. xxxiv, figg. 9 & 10, xxxv, fig. 1.

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†*Griffithides longiceps* var. *angusta* nov., descr. ; WOODWARD, t. c. p. 153, pl. viii, figg. 6-8.

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†*O. walcottanus*, Cambrian, York County, Pen. ; WANNER, P. Washington Ac. iii, p. 267, pls. xxxi & xxxii, n. sp.

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†*Proteus fletcheri*, descr. ; REED, t. c., p. 11, pl. i, figg. 5 & 6.

†*Ptychoparia rogersi*, descr. ; CROSBY, Pap. Boston Soc. iv, p. 679, pl. xxxv, fig. 2.

- †*Spharophthalmus fletcheri*, Cambrian, Cape Breton; MATTHEW, Bull. Soc. N. Brunswick iv, p. 280, pl. v, figg. 7a-f, n. sp.
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EURYPTERIDA.

- †*Bembycosoma* n. g. defined for *pompicus*, Silurian, Pentland Hills; LAURIE, Tr. R. Soc. Edinb. xxxix, p. 588, pl. v, figg. 31 & 32, n. sp.
 †*Drepanopterus lobatus*, p. 582, pl. ii, fig. 16, iii, figg. 17 & 18, *bembycoides*, p. 583, pl. iii, figg. 20-21, Silurian, Pentland Hills; LAURIE, t. c. n. spp.
 †*D. penlandicus*, notes; LAURIE, t. c. p. 584, pl. iv, fig. 22.
 †*Eurypterus scoticus*, p. 585, pls. iv, figg. 23-25, v, fig. 26, *minor*, p. 587, pl. v, figg. 27-29, notes; LAURIE, t. c.
 †*Stimonia dubia*, Silurian, Pentland Hills; LAURIE, t. c., p. 578, pl. i, figg. 2 & 3, n. sp.
 †*Stylonurus elegans*, Silurian, Pentland Hills; LAURIE, t. c., p. 580, pls. ii, figg. 13-15, iii, fig. 19, n. sp.
 †*S. macrophthalmus*, pl. i, figg. 4-7, *ornatus*, pls. i, fig. 8, ii, figg. 10-12, notes; LAURIE, t. c., p. 579.
 †*Strabops* n. g. for *thacheri*, Cambrian, Missouri; BEECHER, Amer. J. Sci. (4) xii, p. 364, pl. vii, and Geol. Mag. (iv) viii, p. 563, n. sp.

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 Phylogeny and Systematic Position of Pantopoda; IHLE (8).

III. DISTRIBUTION.

Arctic: *Pantopoda*; CARPENTER (1): and sub-Arctic: *Pantopoda*; MÖBIUS (10).
 Greenland: *Pycnogonida*; ORTMANN (11).
 Omonville-la-Rogue: *Pycnogonida*; GADEAU DE KERVILLE, Bull. Soc. Rouen 1900, p. 190.
 Casco Bay, Maine: *Pycnogonida*; KINGSLEY, P. Portland Soc. ii, p. 176.
 Bermuda: 2 n. spp. of *Pycnogonida*; VERRILL (12).

IV. SYSTEMATIC.

Achelia gracilis, Flatts Inlet, Bermuda; VERRILL, Tr. Connect. Ac. x, p. 582, pl. lxx, fig. 10, n. sp.
Ammothella n. subg. of *Ammonothea* for *rugulosa*, Bailey Bay, Bermuda; VERRILL, t. c., p. 581, pl. lxx, fig. 9, n. sp.
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XI. ARACHNIDA

(Including TARDIGRADA AND PENTASTOMIDA).

BY

ALBERT BROWN.

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INTRODUCTION.

THE Record of *Arachnida* for 1901 is the largest yet published. From 1896 to 1900 the average number of papers published in one year amounted to something between 120 and 130, and although the following Record contains a number of papers published not in 1901 but in previous years, the increase after making allowance for this is still remarkable.

A superficial examination shows that a large proportion of the Record relates to the *Aranææ* and that the *Acari* have not received so much attention as usual. The literature of the other groups remains much the same in quantity.

The order *Palpigradi*—established for the genus *Kenenia*—appears now to be definitely accepted and therefore is included for the first time in the Record. Previous references to *Kenenia* seem to have been placed under the *Pedipalpi*.

The *Pentastomida* have escaped notice in the Record entirely for some time past. They are now added as an appendix to the *Arachnida*.

Considerable discussion has turned on questions of nomenclature especially of the *Araneæ*. DAHL (38) has published some criticisms of CAMBRIDGE'S papers dealing with the application of the International Rules to the genera of Spiders. The last-named author is pushing on rapidly with his description of the *Araneida* of Central America and making considerable additions to the new species of that region. The African and European regions have also contributed a good many new species to the Record.

In "Das Tierreich" new parts have appeared dealing with the "*Palpigradi* and *Solifugæ*," and with the "*Halacaridæ* and *Hydrachnidæ*."

MICHAEL has published a first volume of a monograph on "British *Tyroglyphidæ*" which promises to be when completed a valuable addition to the Literature of *Acari*.

The new genera and species catalogued in the following pages may be summarised thus :—

	n. gg.	n. subgg.	n. spp.	n. subsp.
Scorpiones	2	0	22	1
Pedipalpi	0	0	7	0
Palpigradi	0	2	4	0
Araneæ	46	5	499	2
Solifugæ	1	0	10	0
Pseudoscorpiones	0	0	7	0
Opiliones	1	0	16	0
Acari	14	2	113	1
Tardigrada	0	0	2	0
Total	64	9	680	4

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Suborder III. INSIDIATORES nov., for *Trixononychoidea*; LOMAN (111), pp. 74-80.

Classification of *Acari*, MICHAEL (116), pp. 26-35; of the *Tyroglyphidae*, MICHAEL (116), pp. 36-44: of the *Ixodidae*, synopsis of genera and species; NEUMANN (118), p. 318: of the Water-Mites; WOLCOTT (215), pp. 110-115.

Systematic position of the *Pentastomida*; IHLE (81), p. 608.

Literature of the *Tyroglyphidae*; MICHAEL (116), pp. 9-25.

Relation of *Arachnida* to the Origin of the *Vertebrata*; GASKELL (56).

Relation of the Scottish Silurian Scorpion to the ancestry of the Scorpions; POCOCK (154), p. 310.

5. Habits, etc. Parasitic, Commensal and other Relations.

Bionomics of *Opiliones*; LOMAN (111), pp. 84-91.

Biology of *Mucrobiotus*; LANCÉ (105).

Habits of *Araneus diadematus* (p. 136) and *Lycosa amentata* (p. 192); SMITH (183): of *Zoropidae*; DAHL (41), p. 254.

Architecture and Nesting-habits of Australian *Araneæ*; RAINBOW (160). Nesting-habits of *Obisium muscorum*; GODFREY (69), p. 215. Coin used as lid of a hole by Trap-door Spider; POCOCK (152). Snares of *Hyptiotes cavatus* and *H. paradoxus*; KEW (89).

Parental care in a *Stegodyphus lineatus*; KATHARINER (85).

Aërial voyages of *Araneæ*; FAVIER (48). Flight of Spiders; G. DE ROCQUIGNY-ADANSON, Rev. Sci. Bourbonnais xiv, pp. 75 & 76.

Suicide in *Scorpiones*; STEUER (192).

Protective colouration in a spider; BOULGER, Nature Notes xii, 1901, p. 198; WILLIAMS, t. c., p. 218.

Misumena vatica Clk. mimicking flower of *Orchis maculata*; SWANTON (193).

Associations between *Pseudoscorpiones* and other animals; KEW (90).

Special Acarid chamber within the Basal Abdominal Segment of Bees; PERKINS (133). See also Record of *Insecta*, p. 85.

Amycia lineatipes, n. sp., commensal with the Ant *Oecophylla smaragdina*; O. P. CAMBRIDGE, P. Z. S. 1901 (i), p. 15.

[See also RIDLEY, J. Straits Asiat. Soc. 1890, p. 345.]

Occurrence of larval Water-mites on various aquatic animals; SOAR (186).

List of the Hosts of all the known species of Ixodidæ; NEUMANN (118), p. 362.

Parasites:—on larva of *Agrotis segetum*, *Uropoda* sp.; GIARD (60).

On *Caradrina cubicularis*, *Acari*; HILLER (76). In Lungs of *Cynocephalus* (S. Sumatra), n. g. of *Dermanyssidæ*; DE HAAN & GRIJNS (71).

On *Vespertilio murinus*, n. g. of *Sarcoptidæ*; OUDEMANS (123).

Pseudo-parasitism of *Chelifer cancrivorus* in Man; ARTAULT DE VEVEY (5).

Peach Yellows possibly caused by a Phytoptid; COOK (33).

Disease of Birds' Feet probably caused by *Acari*; BARBOUR (9).

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Transmission of malignant jaundice of the dog by *Hæmaphysalis leachi*; LOUNSBURY (113).

6. *Miscellaneous.*

Bird caught in a Spider's web; J. S. LAING, Field xcvi, p. 565: G., t. c., p. 602.

An exotic spider (*Hasarius adansonii* And.), acclimatised in Paris; SIMON (176).

Spiders as weather-prophets; SCHINKE (167).

Extermination of the Cattle-tick; CURTICE (35).

III. DISTRIBUTION.

Geographical Distribution of the *Palpigradi*; HANSEN (73), p. 217: of *Zoropsidæ*; DAHL (41), p. 253: of the *Ixodidæ*; NEUMANN (118), p. 351: of *Opliones*; LOMAN (111), pp. 91-98, pls. i & ii.

(1) *Arctic and Antarctic.*

Arctic: *Tardigrada*, incl. n. sp. of *Echiniscus*; SCHAUDINN (166).

Antarctic: (Vacant).

(2) *Europe and Mediterranean Islands.*

Norway. *Araneæ*, 3 n. spp. of *Xysticus*; STRAND (188): *Araneæ theridiidæ*, incl. 2 n. spp. of *Bathypantes* (pp. 18, 23), n. sp. of *Bolyphantes* (p. 5), n. sp. of *Ceratinella* (p. 47), n. sp. of *Cnephalocotes* (p. 41), n. sp. of *Gongyliidium* (p. 33), 2 n. spp. of *Lophthyphantes* (pp. 9, 12), n. sp. of *Lophomma* (p. 42), n. sp. of *Porrhomma* (p. 25), n. sp. of *Pseudogonatium*, n. g. (p. 37); STRAND (189): *Pseudoscorpiones* (p. 5), *Opiliones* (p. 15), *Araneæ* (pp. 16–45); STRAND (190): *Opiliones*, n. sp. of *Liobunum* (p. 7), 2 n. spp. of *Oligolophus* (pp. 11, 13), *Araneæ*, 4 n. spp. of *Gnaphosa* (pp. 39–45), n. sp. of *Clubiona* (p. 30), n. sp. of *Micaria* (p. 33); STRAND (190): *Hydrachnidæ*, incl. 3 n. spp., n. g. and n. subg. of *Sperchon*; THOR (198): *Hydrachnidæ*, n. sp. of *Hjaridalia*, n. g., n. sp. of *Mesobates*, n. g., n. sp. of *Sperchon*, and n. sp. of *Arrenurus*; THOR (199): Aal, Hallingdal, *Pseudoscorpiones*, n. sp.; ELLINGSEEN (45): Hammerfest, *Acari*, n. sp. of *Lebertia*; OUDEMANS & KOENIKE (126), p. 240.

Juist: *Acari*, n. sp. of *Trombidium*, n. sp. of *Smaris*, and n. var. of *Parasitus longulus*; OUDEMANS (121).

Bären Is.: *Acari*, incl. *Eupodidæ*, n. sp. of *Penthaleus*; TRÄGLÄDH (200), p. 19.

Russia. *Arachnida*; KULCZYŃSKI (101): *Acari*, n. sp. of *Ceculus*; KULCZYŃSKI (101): *Hydrachnidæ* and *Tardigrada* (p. 378), *Hydrachnidæ*, 2 n. spp. of *Eylais*, 2 n. spp. of *Hydryphantes*, 2 n. spp. of *Hydrachna*; DADAY (36).

Germany. *Araneæ*; BÖSENBERG (18): Bohmer Wald, *Hydrachnidæ*, n. sp. of *Atracides* (p. 279), 2 n. spp. of *Sperchon* (pp. 282, 284); THON (197): Elbe, *Hydrachnidæ*; FRIČ & VÁVRA (51): Harburg, *Hydrachnidæ*, n. sp. of *Arrenurus*; KOENIKE (93), p. 95: Mauth, n. g. of *Hydrachnidæ*; PIERSIG (136): *Hydrachnidæ*, n. sp. of *Aturus*; PIERSIG (137), p. 33: West Prussia, Tucheler Heide, *Araneæ*; DAHL in RÜBSAAMEN (163): Taunus, *Araneæ*, n. sp. of *Bathypantes*; BÖSENBERG (18), p. 87.

Holland: *Acari*, n. sp. of *Liponyssus*; OUDEMANS (125), p. 66.

Belgium: *Araneæ*; BECKER (11).

Great Britain.—*Araneæ*; SMITH (184). Distribution of *Dysderidæ* in Britain; SMITH, Sci. Gossip (n. s.) viii, p. 149. Gall-producing *Acari*; CONNOLD (32). *Tyroglyphidæ*, *Lentungula*, *Histiostoma* and *Glyciphagus*; MICHAEL (116): *Tyroglyphidæ*, on Beech trees, n. sp. of *Histiostoma* (p. 221), in Mole's nest, n. sp. of *Histiostoma* (p. 215); MICHAEL (116). *Acari*, 2 n. spp. of *Arrenurus*; GEORGE (59), pp. 293 & 294: n. sp. of *Thyas*; GEORGE (59), p. 45: 3 n. spp. of *Eylais*; SOAR (187), pp. 68 & 69: *Acari*; WHEELER (213 & 214).

Scotland. *Chernetidæ*; EVANS, Ann. Scott. Nat. Hist. x, pp. 53 & 241: West Lothian, *Pseudoscorpiones*; GODFREY (69).

Pentland Hills: Silurian, *Scorpiones*, n. sp. of *Palaeophonus*; LAURIE (107).

Cumberland: *Lycosa cinerea* and *L. picta*; JAS. MURRAY, Naturalist xxvi, p. 160. Northumberland and Durham: *Araneæ*; HULL (80). Plennmellon Common: *Araneæ*, n. sp. of *Diplocephalus*; HULL (80), p. 365. Grimsby: *Phalangida*; ARTHUR SMITH, Naturalist xxvi, p. 62. Grantham: *Araneæ*; WOODRUFFE-PEACOCK, Naturalist xxiii, 1898, p. 244. Great Cotes: *Araneæ*; WOODRUFFE-PEACOCK, Naturalist xxiii, 1898, p. 263. Lincolnshire: *Araneæ*; SMITH (182): A. SMITH, Naturalist xxvi, p. 332: *Phalangida*; WOODRUFFE-PEACOCK (216): *Pseudoscorpiones*; KEW (90): *Hydrachnidæ*; GEORGE (57). Port Erin: *Araneæ*; JACKSON (83). Hampshire: *Araneæ*; CAMBRIDGE, F. (25).

N. Wales: *Hydrachnidæ*, n. sp. of *Pionacercus*; SOAR (185), p. 47.

France.—Saint-Guérolé, 2 n. spp. of *Halacaridæ*: Omonville-la-Rogue, n. sp. of *Halacaridæ*; TROUESSART (206): *Halacaridæ*, incl. n. sp. of

Rhombognathus; TROUESSART (203): *Arachnida*; GADEAU DE KERVILLE (87), pp. 191-193. Grotte de Trabuc: *Aranee*, n. sp. of *Pedanostethus*; SIMON (177).

Sierra Nevada: *Aranee*, n. sp. of *Cineas*; SIMON (174), p. 74.

Portugal: *Aranee*, n. sp. of *Saitis*; SIMON (174), p. 67.

Italy (Hot Springs): *Arachnida*; ISSEL (82): *Acari* (p. 51), n. sp. of *Liponyssus*; OUDEMANS (125) (p. 65).

Saxon Switzerland: *Hydrachnida*, n. sp. of *Aturus*; PROTZ (156).

Thun and Brienzer Lakes: *Arachnida*; HEUSCHER (75).

Austria: Cavernicolous *Arachnida*; VIRÉ (209).

Dalmatia, Croatia, Slavonia and Istria: *Aranee*; DAMIN (44).

Bucharest: *Anomalobuthus* n. g.; KRAEPELIN (97), p. 10.

Albania: *Aranee*, n. sp. of *Zoropsis*; DAHL (40), p. 195.

Cephalonia: *Scorpiones* and *Aranee*; PAVESI in DE CARLINI (31), p. 79.

(3) *Asia (Palearctic).*

Caucasus: *Aranee*, n. sp. of *Elurillus*; KULCZYŃSKI (101).

Siberia: *Aranee*, incl. 7 n. spp. of *Lycosa*; ODENWALL (120): *Arachnida* generally, *Aranee*, n. sp. of *Epeira*, n. sp. of *Lycosa*, n. sp. of *Thanatus*; *Opiliones*, n. sp. of *Egenus*; KULCZYŃSKI (101): *Hydrachnida*, incl. n. sp. of *Eylais*; DADAY (36).

Mongolia: *Arachnida* generally and the following new spp., *Opiliones*, 3 n. spp. of *Phalangium*, *Aranee*, 2 n. spp. of *Gnaphosa*, n. sp. of *Pardosa*; KULCZYŃSKI (101).

China: *Arachnida*, *Aranee*, 2 n. spp. of *Xysticus*, 2 n. spp. of *Brachythele*, n. sp. of *Calotes*, n. sp. of *Dictyna*, n. sp. of *Pholcus*, *Opiliones*, 2 n. spp. of *Phalangium*, KULCZYŃSKI (101); *Aranee*, *Attidae*, n. sp. *Cyllobellus*, SIMON (172); *Aranee*, 2 n. spp. of *Latouchia* (n. g. of *Ctenzidae*), Pocock (153), p. 211; N. W. Fokien, *Aranee*, *Halonoproctus*, n. g. of *Ctenzidae*, Pocock (153), p. 209; Da Lan San, *Aranee*, n. sp. of *Nemesia*, Pocock (153), p. 212; Formosa, *Aranee*, n. sp. of *Macrothele*, Pocock (153), p. 214.

Hong-Kong: 9 n. spp. of *Aranee*; SIMON (174): n. sp. of *Macrothele* (*Aranee*); Pocock (153), p. 213.

Cochin China: *Pedipalpi*, n. sp. of *Typopeltis*, KRAEPELIN (97), p. 8; *Acari*, OUDEMANS (125), p. 51.

Koh Chang Is., Bay of Siam: *Palpigradi*, 2 n. spp. of *Karenia*; HANSEN (73), pp. 226, 228.

Arabia: *Aranee*, n. sp. of *Heliophanus*; SIMON (174), p. 60; Muscat, *Scorpiones*, n. sp. of *Buthus* (p. 11), n. sp. of *Hemiscorpius* (p. 16); KRAEPELIN (97).

Baluchistan: *Aranee*, n. sp. of *Sparassus*; Pocock (151), p. 492.

(4) *India, and Further India.*

India: *Aranee*, n. sp. of *Angerus* (p. 497), n. sp. of *Cryptothele* (p. 498), 3 n. spp. of *Heteropoda* (pp. 495 & 496), 7 n. spp. of *Lycosa* (pp. 484-486), n. sp. of *Ornionome* (p. 479), 3 n. spp. of *Oxyopes* (pp. 482 & 483), 10 n. spp. of *Sparassus* (pp. 489-493), 3 n. spp. of *Thelcticopis* (pp. 487-489); Pocock (151).

Almora: *Aranee* (incl. n. sp. of *Midamus*, p. 90) and *Scorpiones*; LEARDI in AIRAGHI (109).

Assam: *Aranee*, n. sp. of *Sparassus* (p. 490), n. sp. of *Thelcticopis* (p. 489), n. sp. *Argyropeira* (p. 481), 2 n. spp. of *Tetragnatha* (pp. 478 & 479), n. sp. of *Ornionome* (p. 480); Pocock (151).

Sikkim: *Araneæ*, *Attidæ*, n. sp. of *Cheysilla*; SIMON (172).
 Indo-China: *Araneæ*, *Attidæ*, n. sp. of *Heliophanus*; SIMON (172).
 Ceylon. *Araneæ*, n. g. of *Attidæ* (p. 227); PECKHAM (128): *Araneæ*, n. spp. of *Lycosa* (p. 486), n. sp. of *Oxyopes* (p. 483), n. sp. of *Thelcticopis* (p. 487), n. sp. of *Sparassus* (p. 494); POCKOCK (151).

(5) Malay Peninsula and Archipelago.

Malay Peninsula: *Araneæ*, incl. 2 n. gg., 36 n. spp., 2 n. subsp., *Pedipalpi*, incl. 3 n. spp., *Pseudoscorpiones*, incl. 2 n. spp., *Opiliones*, incl. n. g. and 7 n. spp., *Scorpiones*; SIMON (179): *Arachnida*; FLOWER (49).

Singapore: *Araneæ*, n. sp. of *Cyrtarachne* (p. 13), n. sp. of *Amyciaea* (p. 14), n. sp. of *Saliculus* (p. 15); O. P. CAMBRIDGE (30): *Araneæ*, n. sp. of *Simætha*; PECKHAM (130), p. 307: *Araneæ*, *Attidæ*, n. sp. of *Agorius*; SIMON (172).

Malay Archipelago: *Arachnida*; SIMON (181).

Sumatra: *Araneæ*, *Attidæ*, n. sp. of *Cosmophasis*, n. sp. of *Epocilla*; SIMON (172).

Sumatra and Java: *Acari*; OUDEMANS (125), pp. 50 & 51.

Java: *Araneæ*, n. sp. of *Argyropeira* (p. 345), n. sp. of *Lycosa* (p. 350); SIMON (181): *Acari*, 8 n. spp., incl. 2 n. g.; OUDEMANS (125).

Lombok: *Araneæ*, *Attidæ*, n. sp. of *Agorius*; SIMON (172).

Borneo: n. sp. of *Chelifer*; ELLINGSEN (46).

Philippines: *Araneæ*, *Attidæ*, n. sp. of *Agorius*; SIMON (172).

Manila: *Pedipalpi*, n. sp. of *Abalius*; KRAEPELIN (97), p. 7.

Taprobane: *Araneæ*, *Attidæ*, n. sp. of *Chrysilla*, n. sp. of *Modunda*, n. sp. of *Flacilla*, n. sp. of *Telamonia*, n. sp. of *Cyllobelus*; SIMON (172).

German New Guinea: *Hydrachnidæ*; DADAY (37).

(6) Africa and Madagascar.

Africa: *Araneæ*, *Attidæ*, n. sp. of *Pseudicius*; SIMON (172).

Algeria: *Solifugæ*, n. var. of *Desia tuelana*; KRAEPELIN (97), p. 6:
 Algiers, *Araneæ*, n. sp. of *Zoropsis*; DAHL (40), p. 194: Tangiers, *Araneæ*, 2 n. spp. of *Zoropsis*; DAHL (40), pp. 192 & 193.

Egypt: *Araneæ*, *Attidæ*, n. sp. of *Modunda*, n. sp. of *Festucula*; SIMON (172): White Nile, 4 spp. of *Arachnida*; FLOWER (50).

W. Africa: *Araneæ*, n. sp. of *Pochyta* (p. 69), n. sp. of *Saitis* (p. 67); SIMON (174).

Sierra Leone: *Araneæ*, *Attidæ*, n. sp. of *Cosmophasis*; SIMON (172).

Senegal: *Araneæ*, *Attidæ*, n. sp. of *Festucula*; SIMON (172).

Cameroons: *Pseudoscorpiones*, 2 n. spp. of *Chelifer*, n. sp. of *Chthonius*; TULLGREN (207).

Abyssinia: *Scorpiones*, n. sp. of *Parabuthus*; POCKOCK (150): *Araneæ*, incl. n. sp. of *Araneus* (p. 19), n. sp. of *Castaneira* (p. 24), n. sp. of *Chiracanthium* (p. 23), n. sp. of *Ctenus* (p. 23), n. sp. of *Euryopus* (p. 19), n. sp. of *Gasteracantha* (p. 20), 2 n. spp. of *Pardosa* (pp. 25 & 26), n. sp. of *Pyreathis* (p. 22), n. sp. of *Runciniopsis* (p. 21); SIMON (173).

Erythraea: *Scorpiones*, n. sp. of *Pandinus*; BORELLI (15): *Araneæ*, incl. 15 n. spp. and 1 n. g. (names only); KULCZYŃSKI (102).

Djibouti: 5 n. spp. and n. g. of *Halacarida*; TROUËSSART (205).

Mozambique: *Arachnida*; BOUVIER & LESNE (19).

East Africa (British): *Araneæ*, n. sp. of *Dresserus*; POCKOCK (147), p. 287.

Congo: *Scorpiones*, n. sp. of *Parabuthus*; POCKOCK (147), p. 284: *Araneæ*, n. sp. of *Ræcius*; DAHL (40), p. 188: *Araneæ*, *Attidæ*, n. sp. of *Orsima*; SIMON (172).

- Basutoland: *Araneæ*, n. sp. of *Senelops*; Pocock (147), p. 288.
 Kalahari Desert: *Scorpiones*, n. subsp. of *Parabuthus*, p. 285, *Araneæ*, n. sp. of *Heligomerus*, p. 286; Pocock (147).
 Mashonaland. *Araneæ*, n. spp. of *Ischnothele*, *Agelena*, *Lycosa*, *Micrommata*, *Sparassus*, and *Thomisus*; Pocock (148), pp. 337-340: Salisbury, *Araneæ*, n. sp. of *Prothesima* (p. 11), n. sp. of *Titus*, n. g. (p. 12); O. P. Cambridge (30).
 Transvaal: n. sp. of *Heliophanus* (p. 55), n. sp. of *Langona*, n. g. (p. 70), n. sp. of *Ælurillus* (p. 71), n. sp. of *Arceus* (p. 75); Simon (174).
 Cape of Good Hope: 3 n. spp. of *Heliophanus* (pp. 52, 56, 58), 2 n. spp. of *Habrocestum* (pp. 71 & 72); Simon (174).
 Grahamstown (near): *Araneæ*, n. sp. of *Acanthodon*, p. 286, n. sp. of *Harpactira* (p. 287); Pocock (147).
 King William's Town: *Araneæ*, n. sp. of *Stasimopus*; Pocock (147), p. 285.
 S. Africa. *Solifugæ*, n. sp. of *Solpuga*; Kraepelin (p. 97), p. 5: *Scorpiones*, incl. n. sp. of *Buthus*, n. sp. of *Lychas*, 4 n. spp. of *Uroplectes*, n. sp. of *Hadogenes*, *Pedipulpi*, n. sp. of *Phrynichus*, *Solifuga*, incl. n. sp. of *Solpuga*, 4 n. spp. of *Blossia*, n. sp. of *Hemiblossia*, n. sp. of *Gluviopsis*, n. sp. of *Hexiopus*, n. sp. of *Chelypus*, n. g.; Purcell (157): *Araneæ*, *Attidæ*, n. sp. of *Icius*, n. sp. of *Cyllobellus*; Simon (172): *Araneæ*, 2 n. sp. of *Heliophanus* (p. 59), n. sp. of *Mogrus* (p. 72), 2 n. spp. of *Phlegra* (p. 73); Simon (174).
 Madagascar. *Scorpiones*, 4 n. spp. of *Grosphus*; Kraepelin (97), pp. 13-15: *Araneæ*, 2 n. gg. of *Zoropsidæ*; Dahl (40), p. 196; (41), p. 247: n. sp. of *Thyene*; Peckham (130), p. 308: *Attidæ*, n. sp. of *Echinussa*; Simon (172): 2 n. spp. of *Heliophanus*; Simon (174), pp. 53, 57: n. sp. of *Filistata*; Simon (175).

(7) *North America.*

- N. America: *Araneæ* of *Phidippus* group, n. sp. of *Phidippus*; Peckham (130) p. 297: *Phalangida*; Banks (7).
 Canadian Rocky Mts.: *Araneæ*, n. sp. of *Phidippus*; Peckham (130) p. 296.
 Lake Huron: *Acari*, n. g. of *Hygrobatidæ*; Wolcott (215) p. 106.
 Long Is.: *Araneæ*, n. sp. of *Phidippus*; Peckham (130) p. 291.
 Charleston, S. C.: *Araneæ Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 219.
 Georgia: *Araneæ*, *Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 219.
 Florida: *Araneæ*, *Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 210.
 Utah: *Araneæ*, *Attidæ*, 3 n. spp. of *Pellenes* (pp. 215, 221); Peckham (128).
 Wisconsin: *Araneæ*, *Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 209.
 Nebraska: *Acari*; Ward (211).
 Kansas: *Araneæ*, *Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 224.
 Texas: *Araneæ*, n. sp. of *Dendryphantes* (p. 314), n. sp. of *Mavia* (p. 344); Peckham (130): *Araneæ*, *Attidæ*, n. sp. of *Pellenes*; Peckham (128) p. 218: (Cave): *Araneæ*, n. sp. of *Theridium* (nom. nud.); Eigenmann, P. Amer. Ass. xlix, p. 130.
 New Mexico: *Araneæ*, n. sp. of *Parnanus* (p. 301), 2 n. spp. of *Phidippus* (pp. 288 & 291); Peckham (130): *Araneæ*, *Attidæ*, 3 n. spp. of *Pellenes*; Peckham (128) pp. 216, 217, 223.
 Arizona: *Araneæ*, 2 n. spp. of *Dendryphantes*; Peckham (130) p. 326: *Attidæ*, 4 n. spp. of *Pellenes* (pp. 213, 221, 222, 224); Peckham (128).
 California: *Araneæ*, n. sp. of *Phidippus*; Peckham (130) p. 289: *Attidæ*, 2 n. spp. of *Pellenes*; Peckham (128) pp. 212 & 217.
 Lower California: n. g. of *Scorpiones*; Kraepelin (97) p. 17.

(8) *Central and South America and the West Indies.*

Central America. *Araneæ*; CAMBRIDGE, F. (24): *Attidæ* (*Phidippus* group); PECKHAM (130).

Mexico. *Araneæ*, n. sp. of *Marpissa*, n. sp. of *Habronattus*, 6 n. spp. of *Cyrene*, 13 n. spp. of *Sidusa*, n. sp. of *Amycus*, n. sp. of *Phania*, n. sp. of *Paramarpissa* (n. g.), n. sp. of *Cheliferoides* (n. g.), 8 n. spp. of *Metaphidippus* (n. g.), 2 n. spp. of *Paraphidippus* (n. g.), 6 n. spp. of *Phidippus*, n. sp. of *Homalattoides* (n. g.), n. sp. of *Tomis* (n. g.), 2 n. spp. of *Tinus* (n. g.); CAMBRIDGE, F. (24): *Attidæ*, 2 n. spp. of *Pellenes* (pp. 220, 223), n. sp. of *Homalattus* (p. 229); PECKHAM (128): 2 n. spp. of *Dendryphantes* (pp. 313 & 323), n. sp. of *Phidippus* (p. 293); PECKHAM (130): N. g. of *Aviculariidae*; Pocock (149) p. 552.

Panama: *Araneæ*, n. sp. of *Colonus*, 10 n. spp. of *Cyrene*, 6 n. spp. of *Sidusa*, n. sp. of *Amycus*, 7 n. spp. of *Metaphidippus* (n. g.), n. sp. of *Phidippus*, n. sp. of *Beata*, 2 n. spp. of *Homalattoides* (n. g.), n. sp. of *Cupiennius*, n. sp. of *Thaumasia*; CAMBRIDGE, F. (24).

Guatemala: *Araneæ*, n. sp. of *Marpissa*, n. sp. of *Habronattus*, 10 n. spp. of *Cyrene*, 9 n. spp. of *Sidusa*, n. sp. of *Amycus*, 12 n. spp. of *Metaphidippus* (n. g.), 2 n. spp. of *Parnæus*, 2 n. spp. of *Zygoballus*, n. sp. of *Tinus* (n. g.); CAMBRIDGE, F. (24).

Nicaragua: *Araneæ*, n. sp. of *Cupiennius*; CAMBRIDGE, F. (24).

Costa Rica: *Araneæ*, n. sp. of *Cyrene*, 3 n. spp. of *Metaphidippus* (n. g.), n. sp. of *Paraphidippus* (n. g.), n. sp. of *Cupiennius*; CAMBRIDGE, F. (24).

Cuba: *Araneæ*, n. sp. of *Dendryphantes*; PECKHAM (130) p. 327.

Jamaica: *Araneæ*, n. g. and 13 n. spp. of *Attidæ*; PECKHAM, G. W. & E. G. (129).

Bahamas: *Araneæ*, incl. n. gen. of *Theraphosidæ*; F. O. P. CAMBRIDGE (27).

S. America: *Araneæ*, n. g. of *Zoropsidæ*; DAHL (41) p. 251: n. g. of *Attidæ*; PECKHAM (128) p. 225: n. g. of *Aviculariidae*; Pocock (149) p. 546: *Acari*, 23 n. spp. incl. 3 n. g.; BERLESE & LEONARDI (12).

Venezuela: *Araneæ*, n. sp. of *Saitis* (p. 66), n. sp. of *Saitidops* (p. 72), 2 n. spp. of *Semorina* (p. 75), n. sp. of *Sebastira* (p. 76); SIMON (174): *Attidæ*, 2 n. spp. of *Akela*, n. sp. of *Itata*, n. sp. of *Chirothecia*, n. sp. of *Semora*, n. sp. of *Atelurius*, n. sp. of *Jollas*; SIMON (172).

Trinidad: *Araneæ*, 2 n. spp. of *Dynamius* (pp. 338 & 339); PECKHAM (130).

New Grenada: *Araneæ*, n. sp. of *Escambia* (p. 336); PECKHAM (130).

Ecuador: *Araneæ*, n. sp. of *Leptorchestes*; SIMON (174) p. 74: *Attidæ*, n. sp. of *Phintia*, n. sp. of *Hurius*, n. sp. of *Tutelina*; SIMON (172).

Lima: *Araneæ*, n. sp. of *Dendryphantes*; PECKHAM (130) p. 320.

Brazil: *Araneæ*, n. sp. of *Admirala*, n. g. (p. 330), 6 n. spp. of *Dendryphantes* (pp. 316, 319, 321, 324, 325, 328), 2 n. spp. of *Dynamius* (p. 340), n. sp. of *Palestrina*, n. g. (p. 304), n. sp. of *Selimus*, n. g. (p. 329); PECKHAM (130): n. g. of *Attidæ*; PECKHAM (128) p. 226: 2 n. gg. of *Aviculariidae*; Pocock (149) pp. 548 & 550: n. sp. of *Ilargus* (p. 66), n. sp. of *Osericta* (p. 75), n. sp. of *Saitis* (p. 67); SIMON (174): *Attidæ*, n. sp. of *Chirothecia*, 2 n. spp. of *Breda*, n. sp. of *Deloripa*, n. sp. of *Scoturius*; SIMON (172).

Amazons: *Araneæ*, n. sp. of *Escambia*; PECKHAM (130) p. 335: *Attidæ*, n. sp. of *Chirothecia*, n. sp. of *Breda*, n. sp. of *Helvetia*; SIMON (172).

Santarem: *Araneæ*, n. sp. of *Phidippus*; PECKHAM (130) p. 298.

Rio Janeiro: *Araneæ*, n. g. of *Attidæ*; PECKHAM (128) p. 228.

Matto-Grosso: *Araneæ*, *Attidæ*, n. sp. of *Helvetia*, 2 n. spp. of *Naubolus*; SIMON (172).

Molle: *Araneæ*, n. sp. of *Chrosiotes* (p. 18), n. sp. of *Euophrys* (p. 22), 2 n. spp. of *Meta* (pp. 18 & 19); SIMON (180).

Para: *Araneæ*, 2 n. spp. of *Dendryphantes*; PECKHAM (130) pp. 317 & 323: *Araneæ*, n. sp. of *Mæota*; SIMON (174) p. 69.

Quilpué: *Araneæ*, n. sp. of *Euophrys*; SIMON (180) p. 21.

Coxipo: n. g. of *Gamasidæ* (in Ants' nest); SILVESTRI (171) p. 21.

Argentina, Uruguay, Paraguay, and Matto Grosso: *Scorpiones*, incl. 2 n. spp. of *Titius* (pp. 3 & 6); BORELLI (16).

Argentina: *Sarcoptidæ*, n. sp. of *Tyroglyphus* (in Ants' nest); SILVESTRI (171) p. 24.

Buenos Aires: *Araneæ*, *Attidæ*, n. sp. of *Akela*; SIMON (172).

Uruguay: n. g. of *Aviculariidæ*; POCKOCK (149) p. 553.

Paraguay: *Palpigradi*, n. sp. of *Kenenia*; HANSEN (73) p. 230: *Araneæ*, n. sp. of *Acanthoctenus*; DAHL (40) p. 187: *Attidæ*, n. sp. of *Helvetia*, n. sp. of *Cerionesta*; SIMON (172): in Ants' nests, 3 n. spp. of *Gamasidæ*; SILVESTRI (171) pp. 21 & 22.

Chili: *Palpigradi*, n. sp. of *Kenenia*; HANSEN (73) p. 224.

Patagonia: *Acari*, n. sp. of *Nothrus* (Fossil and living); TRÄGÅRDH (201).

(9) *Australasia.*

Australia: *Mygalomorphæ*, including 2 n. spp. of *Selencosmia* (pp. 245 & 246), n. sp. of *Idiocia* (p. 242), 3 n. spp. of *Aname* (pp. 252-255), n. g. of *Dipluridæ* and 2 n. spp. (pp. 261-263), 2 n. spp. of *Ixamatus* (pp. 257-260), n. sp. of *Stenogyrocercus* (p. 270); HOGG (77): *Araneæ*, n. sp. of *Jotus*; PECKHAM (130) p. 333: *Araneæ*, *Attidæ*, n. sp. of *Holoplatys*; SIMON (172): *Araneæ*, n. sp. of *Saitis*; SIMON (174) p. 68: *Arachnida*; SIMON (181). Queensland: *Araneæ*, n. sp. of *Eriodon*; SIMON (181) p. 343. Brisbane: n. sp. of *Charon*; LAUTERER (108). Victoria: *Araneæ*, n. sp. of *Jotus* (p. 332), n. sp. of *Opisthoncus* (p. 345); PECKHAM (130).

Tasmania: *Araneæ*, *Attidæ*, n. sp. of *Ocrisoma*; SIMON (172).

New Zealand: *Mygalomorphæ*; HOGG (77). Christchurch: *Araneæ*, n. g. of *Ctenizidæ*, p. 237, n. sp. of *Porrhothele*, p. 269; HOGG (77). Cook Strait: *Hydrachnida*, n. sp. of *Eylais*; KOENIKE (95) p. 125.

(10) *Atlantic Islands (not included in the foregoing).*

(Vacant.)

(11) *Indian Ocean Islands (not included above).*

Mauritius: *Araneæ*, n. sp. of *Heliophanus*; SIMON (174) p. 54: *Araneæ*, *Attidæ*, n. sp. of *Epocilla*; SIMON (172).

Seychelles: *Araneæ*, n. sp. of *Salpesia*; SIMON (174) p. 70.

(12) *Pacific Islands (not included above).*

Galapagos Is.: *Araneæ*; KELLOGG (86).

Tahiti: *Araneæ*, n. sp. of *Lauharulla*; SIMON (174) p. 68.

(13) *Habitat Unknown.*

Araneæ, n. sp. of *Dendryphantes* (p. 319), n. sp. of *Dynamius* (p. 340), n. sp. of *Phidippus* (p. 292); PECKHAM (130).

IV. SYSTEMATIC.

ARACHNIDA.

[For papers dealing with *Arachnida* generally, see Titles Nos. 6, 13, 19, 50, 56, 70, 74, 78, 115, 147, 161.]

SCORPIONES.

[See Titles under *Arachnida* and Nos. 2, 10, 15, 16, 31, 49, 98A, 107, 150, 154, 155, 157, 192.]

- Anateris balzani*, notes, BORELLI, Boll. Mus. Torino xvi, No. 403, p. 1.
Anomalobuthus, n. g. for *rickmersi*, Bucharest, KRAEPELIN, Abh. Ver. Hamburg xvi (1), No. 4, p. 10, n. sp.
Archisometrus mucronatus, habits etc., FLOWER, J. Straits Asiat. Soc., No. 36, p. 30.
Bothriurus dorbignyi, *burmeisteri*, p. 10, *vittatus*, *coriaceus*, *chilensis*, p. 11, notes, BORELLI, Boll. Mus. Torino xvi, No. 403.
Brachiostrongylus weigenbergi, note, BORELLI, t. c., p. 8.
Buthus maindroni, Muscat, KRAEPELIN, Abh. Ver. Hamburg xvi (1) No. 4, p. 11; *B. arenaceus*, Little Bushmanland, descr., PURCELL, Ann. S. African Mus. ii, p. 137 : n. spp.
Grosphus, g. and key to n. spp., p. 11, *grandidieri*, p. 13, *flavopiceus*, *biatriatus*, p. 14, *hirtus*, p. 15, Madagascar, KRAEPELIN, Abh. Ver. Hamburg xvi (1), No. 4, n. spp.
Hadogenes granulatus, Rustenburg District, Transvaal, descr., PURCELL, Ann. S. African Mus. ii, p. 204, n. sp.
Hemiscorpius maindroni, Muscat, KRAEPELIN, Abh. Ver. Hamburg xvi (1), No. 4, p. 16, n. sp.
Lychas (= *Archisometrus* Krpln.) *pegleri*, Umtata, Cape Colony, descr., PURCELL, Ann. S. African Mus. ii, p. 171, n. sp.
Opisthophthalmus wahlbergi, p. 194, *longicauda*, p. 195, *karrooensis*, *austerus*, p. 196, *carinatus*, *ater*, p. 197, *granicauda*, p. 198, *granifrons*, *pictus*, p. 199, *crassimanus*, p. 200, *nitidiceps*, p. 201, *chaperi*, *fossor*, *macer*, p. 202, *latimanus*, *glabrifrons*, p. 203, notes on S. African spp., PURCELL, t. c.
†*Palæophonus hunteri*, Silurian, Scotland, morphology and description, Pocock, Quart. J. Micr. Sci. xlv, p. 291, pl. xix; †*P. londonensis*, Silurian, Pentland Hills, LAURIE, Tr. R. Soc. Edinb. xxxix, p. 576, pl. i, fig. 1 : n. spp.
Pandinus magretti, Erythræa, BORELLI, Boll. Mus. Torino xvi, No. 384, n. sp.
Parabuthus cristatus, Congo, ♀ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 284; *P. abyssinicus*, Abyssinia, Pocock, Boll. Mus. Torino xvi, No. 382 : n. spp.
P. granulatus fuscus, Kalahari Desert, descr., Pocock, Ann. Nat. Hist. (7) vii, p. 285, n. subsp.
P. capensis, p. 143, var. *frenchi*, nov., p. 148, *calvus*, p. 148, *brevimanus*, p. 149, *laevifrons*, p. 151, *neglectus*, p. 155, *villosus*, p. 158, *transvaalicus*, p. 162, *schlechteri*, p. 164, *granulatus*, p. 168, all described from S. African specimens, PURCELL, Ann. S. African Mus. ii.
Syntropis, n. g. for *macrura*, Lower California, KRAEPELIN, Abh. Ver. Hamburg xvi (1), No. 4, p. 17, n. sp.
Tityus trivittatus, p. 5, *bahiensis*, p. 6, notes, BORELLI, Boll. Mus. Torino xvi, No. 403.

- T. uruguayensis*, Uruguay, p. 3, *mattogrossensis*, Matto Grosso, p. 6, BORELLI, t. c., n. spp.
Uroplectes alstoni, Worcester Div., S. Africa, p. 179, *karroicus*, Beaufort West, p. 182, *schlechteri*, Gt. Bushmanland, p. 184, *marlothi*, Gt. Winterhøek, p. 192, PURCELL, Ann. S. African Mus. ii, n. spp.
Uroplectes carinatus, p. 175, *triangulifer*, p. 185, *lineatus*, p. 188, *insignis*, p. 191, descr. of S. African forms, PURCELL, t. c.
Zabius fuscus, notes, BORELLI, Boll. Mus. Torino xvi, No. 403, p. 2.

PEDIPALPI.

[See Titles Nos. 98, 108, 132, 157, 179, 194.]

Synopses of N. American *Phalangida*, BANKS (7).

- Abalius manilanus*, Manila, KRAEPELIN, Abh. Ver. Hamburg xvi (1), No. 4, p. 7, n. sp.
Catagorus rimosus, Kelantan, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 77, n. sp.
Charon annulipes, Brisbane, LAUTERER, Rep. Australas. Ass. 1895, p. 413, n. sp.
Hypoctonus kraepelini, Jalor, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 77, n. sp.
Phrynichus scullyi, Cape Colony, descr., PURCELL, Ann. S. African Mus. ii, p. 206, n. sp.
Stygophrynus cerberus, Jalor, descr., SIMON, P. Z. S. 1901 (ii), p. 76, n. sp.
Thelyphonus pococki, descr., TARNANI, Annuaire Mus. St. Petersb. vi, p. 214, pl. ix, figg. 3-6.
T. skinkewitchii, notes, FLOWER, J. Straits Asiat. Soc., No. 36, p. 37.
Typopeltis harmandi, Cochin China, KRAEPELIN, Abh. Ver. Hamburg xvi (1) No. 4, p. 8, n. sp.
T. kasnakowi, ♂, descr., TARNANI, Annuaire Mus. St. Petersb. vi, p. 207, pl. ix, figg. 1-3.

PALPIGRADI.

Palpigradi, KRAEPELIN (96).

[See Titles Nos. 17, 73, 164.]

- Eukenenia*, n. subg. def., BORNER, Zool. Anz. xxiv, p. 551.
Kaenenia chilensis, Chili, p. 224, pl. iii, figg. 2a-2i, *angusta*, Koh Chang Is. in Bay of Siam, p. 226, pls. iii, figg. 3a-3h, iv, figg. 1a-1f, *siamensis*, Koh Chang Is., Bay of Siam, p. 228, pl. iv, figg. 2a-2i, *grassii*, Paraguay, p. 230, pl. iv, figg. 3a-3f, HANSEN, Ent. Tidskr. xxii.
K. mirabilis, p. 219, pl. ii, figg. 1a-1f, *wheeleri*, p. 222, pls. ii, figg. 2a-2l, iii, figg. 1a & 1b, descr., HANSEN, t. c., n. spp.
Prokaenenia, n. subg. def. for *wheeleri*, BORNER, Zool. Anz. xxiv, p. 551, first descr. by RUCKER from Texas, RUCKER, Amer. Natural. xxxv, p. 616 : n. sp.

ARANEÆ.

[For papers on *Araneæ* see Titles Nos. 1, 8, 11, 14, 18, 20, 24-31, 38-44, 47, 48, 68, 74, 80, 83, 85, 86, 89, 92, 97, 101-104, 112, 120, 127-130, 147-149, 151-153, 158, 160, 163, 165, 167, 172-184, 188-191, 193.]

Identification of spiders described by WALCKENAER, KOCH and others, BANKS (8).

Phidippus, key to the North and Centr.-American spp. of, PECKHAM (130), pp. 285-288.

Zoropnida, key to the genera and species of, DAHL (40), pp. 185-196.

- Acanthoctenus impar*, Paraguay, DAHL, SB. Ges. naturf. Berlin 1901, p. 187, n. sp.
- Acanthodon fluveolum*, near Grahamstown, ♀ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 286, n. sp.
- Acanthoscurria*, gen. emend. and defined, Pocock, op. cit. viii, p. 543.
- Acentropelma*, n. g. of *Aviculariidae*, def. for *Metriopelma spinulosum*, Pocock, t. c., p. 554.
- Admirala*, n. g. of *Attidae*, for *lepida* ♂, Brazil, p. 330, pl. xxviii, figg. 11-11c, *regia* ♂, Rio Janeiro, p. 331, pl. xxviii, figg. 12-12c, PECKHAM, Tr. Wisconsin Ac. xiii, n. spp.
- Adurillus concolor*, Caucasus, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 349, pl. xiii, fig. 18; *A. guttiger*, Transvaal, SIMON, Ann. Soc. ent. France lxx, p. 71 : n. spp.
- Aganippe subtristis*, notes on S. Australian specimen, Hogg, P. Z. S. 1901 (ii), p. 231.
- Ayelenia rhodensis*, Umtali, descr., Pocock, Ann. Nat. Hist. (7) vii, p. 337, n. sp.
- Agorius cinctus*, Lombok, p. 143, *semirufus*, Philippines, ♂ descr., p. 143, *constrictus*, Singapore, p. 144, SIMON, Ann. Soc. ent. Belgique xlv, n. spp.
- Akela charlottæ*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., p. 299, pl. xxix, figg. 8 & 8a.
- A. quadraturia*, Venezuela, ♂ descr., p. 145, *campestrata*, Venezuela, ♂ descr., p. 145, *gladifera*, Buenos Aires, ♂ descr., p. 146, SIMON, Ann. Soc. ent. Belgique xlv, n. spp.
- Alcimosphenus lacinus*, fig., F. O. P. CAMBRIDGE, Ann. Nat. Hist. (7) vii, p. 332, pl. vii, fig. 7.
- Amyciaea lineatipes*, Singapore, ♀ described, O. P. CAMBRIDGE, P. Z. S. 1901 (i), p. 14, pl. v, figg. 4-4d, n. sp.
- Amycus benignus*, p. 193, pl. xiv, figg. 5-6i, *hieroglyphicus*, p. 194, pl. xiv, figg. 9 & 10, *pucatus*, p. 195, pl. xv, figg. 3 & 3a, *fallax*, p. 195, pl. xv, figg. 4 & 5, *longipalpus*, p. 195, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- A. quadriguttatus*, Mexico, p. 194, pl. xiv, figg. 7-8a, *palpinalis*, Panama, p. 195, pl. xiv, figg. 11-11c, *spiralifer*, Guatemala, p. 196, pl. xv, figg. 2-2e, CAMBRIDGE, F., t. c., n. spp.
- Anume grisea*, Macedon, Victoria, p. 252, fig. 30, *arborea*, Macedon, Victoria, p. 254, fig. 31, *pellucida*, Macedon, Victoria, p. 255, fig. 32, Hogg, P. Z. S. 1901 (ii), n. spp.
- Andasta cyclosina*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 62, n. sp.
- Anepsia fuscolumbata*, Perak, ♀ descr., SIMON, t. c., n. sp.
- Angæus pentagonalis*, S. India, Pocock, J. Bombay Soc. xiii, p. 497, n. sp.
- Anidiops manstridgei*, descriptive notes, Hogg, P. Z. S. 1901 (ii), p. 231.
- Anoku jimbrata*, Guatemala, p. 256, pl. xxii, figg. 16-16d, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. sp.
- A.*, g. def., p. 255, *grenada*, p. 256, pl. xxii, figg. 15-15i, CAMBRIDGE, F., t. c.
- Aphonopelma*, n. g. of *Aviculariidae*, def. for *Eurypelma seemanni*, Pocock, Ann. Nat. Hist. (7) viii, p. 553.
- Arægeus mimicus*, ♀, Transvaal, SIMON, Ann. Soc. ent. France lxx, p. 75, n. sp.
- Araneus*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 61 ; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 59 ; *A. diadematus*, habits and life-history, SMITH, Natural. J. x, p. 136, pl. ix ; *A. submucronatus*, note on differences from *A. de kaani*, SIMON, P. Z. S. 1901 (ii), p. 59.
- A. potteri*, ♀, Abyssinia, SIMON, Ann. Soc. ent. France lxx, p. 19, n. sp.
- Arbanitis gilliesii*, p. 233, figg. 24a & b, *huttonii*, p. 236, fig. 24d, *kirkii*, p. 236, descriptive notes, Hogg, P. Z. S. 1901 (ii).

- Argiope brünnichii*, descr., BÖSENBERG, Zoologica xiii (xxx), p. 20, pl. i, fig. 1; *A. blanda*, pl. xxxvii, figg. 2-2f, *godmani*, pl. xxxvii, figg. 8-8f, figured, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer.
- Argyrodes maculosa*, pl. xxxvii, figg. 3-3b, *linguata*, pl. xxxviii, figg. 1-1e, *subdola*, pl. xxxviii, figg. 2-2c, *furcata*, pl. xxxviii, figg. 3-3c, *aurea*, pl. xxxviii, figg. 4-4e, figured, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer.
- Argyropeira levanderii*, Erythræa, name only and figg., KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pls. i, figg. 18, 21 & 22, ii, fig. 29; *A. beata*, Shillong, Assam, Pocock, J. Bombay Soc. xiii, p. 481; *A. vibrabunda*, Java, SIMON in SEMON's Zool. Forschungs. Austral. v, p. 345 : n. spp.
- A. festiva*, figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pls. i, figg. 19 & 20, ii, fig. 28.
- Argyroneta*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 58; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 54.
- Ariamnes flagellum nigratus*, Patalong, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 51, n. subsp.
- A. procera*, figured, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer., pl. xxxviii, figg. 5-5b.
- Artema kochii*, pl. i, figg. 14, *mauritica*, fig. 15, figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62.
- Astabula*, g. def., p. 256, *dentata*, Guatemala, p. 257, pl. xxiii, figg. 1-1e, *nigricans*, Mexico, p. 257, pl. xxiii, figg. 2 & 3, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. spp.
- Atax robustus*, descriptive notes, HOGG, P. Z. S. 1901 (ii), p. 273, fig. 33.
- Atelurius segmentatus*, Venezuela, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 154, n. sp.
- Atypus*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 57; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 53.
- Avitus dioleni*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., p. 298, pl. xxix, figg. 7 & 7a.
- Baqheera kiplingi*, CAMBRIDGE, F., t. c., p. 298, pl. xxix, figg. 5-5b.
- Balmaceda picta*, p. 297, pl. xxviii, figg. 18-19a, *punctata*, p. 297, pl. xxviii, figg. 2 & 3, CAMBRIDGE, F., t. c.
- Bathyphanes simonii* (= *zebrinus* Sim.), Tauuus (Gt. Feldberg), BÖSENBERG, Zoologica xiii (xxxv), p. 87, pl. vii, fig. 101; *B. norvegicus*, Tysfjorden, p. 18, *arcticus*, ♀, Nadelholz, p. 23, STRAND, Arch. Naturv. Christian. xxiv, No. 2 : n. spp.
- B. concolor*, p. 84, pl. vii, fig. 95, *nigrinus*, p. 85, pl. vii, fig. 96, *approximatus*, p. 85, pl. vii, fig. 97, *dorsalis*, p. 86, pl. vii, fig. 98, *gracilis*, p. 86, pl. vii, fig. 99, *zebrinus*, p. 87, pl. vii, fig. 100, *miser*, p. 88, pl. vii, fig. 102, *nitidus*, p. 88, pl. vii, fig. 103, *mastodon*, p. 89, pl. vii, fig. 104, *capucinus*, p. 89, pl. vii, fig. 105, *circumspectus*, p. 89, pl. vii, fig. 106, descr., BÖSENBERG, Zoologica xiii (xxxv).
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- B.*, note on resemblances between Australian and S. American spp., p. 256, *platipus*, notes, p. 257, Hogg, P. Z. S. 1901 (ii).
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- Castaneira bartholini*, ♀, Abyssinia, SIMON, Ann. Soc. ent. France lxx, p. 24, n. sp.
- Centromeria*, n. subg., for *Centromerus bicolor* Bl., def., STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 32.
- Ceratinella oculatissima*, ♂, Skarmodal, STRAND, t. c., p. 47, n. sp.
- Cercidia prominens*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 53, pl. iv, fig. 47.
- Cerionesta cribrata*, Paraguay, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 158, n. sp.
- Cheliferoides*, n. g. of *Phidippeæ*, def., p. 254, *segmentatus*, Guatemala, p. 254, pl. xxii, figg. 12-12f, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Cent.-Amer., n. sp.
- Chenistoma*, n. g. of *Dipluridæ*, def., p. 261, for *maculata*, Macedon, Victoria, p. 262, fig. 35, *major*, Upper Macedon, Victoria, p. 263, fig. 36, Hogg, P. Z. S. 1901 (ii), n. spp.
- Chilobrachys annandalei*, Jalor, ♀ descr., SIMON, t. c., p. 46, n. sp.
- Chiracanthium affine*, pl. ii, figg. 41, 43, 46, *proximum*, pl. ii, figg. 42, 44, 47, *Erythræa*, name and figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 63; *C. micheli*, ♂, Abyssinia, SIMON, Ann. Soc. ent. France lxx, p. 23 : n. spp.
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- Colonus*, n. g., def., p. 246, *puerperus*, synonymy and note, p. 246, pl. xxi, figg. 11-12e, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- C. crucifer*, Panama, p. 247, pl. xxi, fig. 13, CAMBRIDGE, F., t. c., n. sp.
- Coprocrossoa*, n. nom., for *Stenodina* (preoccupied) *poliiventris*, Perak, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 71, n. sp.

- Cosmophasis ichneumon*, Sumatra, ♂ descr., *cærulea*, Sierra Leone, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 148, n. spp.
- Cotinusa distincta*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., p. 299, pl. xxix, fig. 12.
- Cryptothele collina*, S. India, Pocock, J. Bombay Soc. xiii, p. 498, n. sp.
- Ctenus potteri*, ♀, Abyssinia, SIMON, Ann. Soc. ent. France lxx, p. 23, n. sp.
- Cupiennius coccineus*, Panama, p. 307, pl. xxix, fig. 18, *griseus*, Costa Rica, p. 307, *foliatus*, Nicaragua, p. 307, pl. xxx, figg. 1-2a, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. spp.
- C.*, g. def. and key to spp., p. 305, *sallei*, p. 306, pl. xxix, figg. 16-17i, CAMBRIDGE, F., t. c.
- Cybele grisea*, p. 8, pl. ii, figg. 2-2e, *albopalpis*, p. 9, pl. ii, figg. 3-3b, both from Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii), n. spp.
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- Cyrene longispina*, Guatemala, p. 230, pl. xviii, figg. 14-14d, *bilobata*, Guatemala, p. 230, pl. xviii, figg. 15-15d, *bulbosa*, Panama, p. 231, pl. xviii, figg. 16-16d, *prominens*, Mexico, p. 231, pl. xix, figg. 1-2a, *curvispina*, Guatemala, p. 231, pl. xix, figg. 3-3c, *grisea*, Guatemala, p. 233, pl. xix, figg. 6-6c, *bifida*, Panama, p. 233, pl. xix, figg. 7-7d, *minuta*, Panama, p. 233, pl. xix, figg. 10-10c, *bifurcata*, Panama, p. 234, pl. xix, figg. 11-11b, *maculatipes*, Mexico, p. 234, pl. xix, figg. 12-12d, *emarginata*, Guatemala, p. 235, pl. xix, figg. 13 & 13a, *infusata*, Panama, p. 235, pl. xix, figg. 14 & 14a, *bicavata*, Panama, p. 235, pl. xix, figg. 15 & 15a, *albosignata*, Guatemala, p. 235, pl. xix, figg. 16 & 16a, *hieroglyphica*, Mexico, p. 236, pl. xix, figg. 17 & 17a, *flava*, Guatemala, p. 236, pl. xix, figg. 18 & 18a, *bisignata*, Mexico, p. 236, pl. xx, figg. 1 & 1a, *mediocava*, Mexico, p. 236, pl. xx, figg. 2 & 2a, *laticava*, Guatemala, p. 237, pl. xx, figg. 3 & 3a, *simplicicava*, Mexico, p. 237, pl. xx, figg. 4-4b, *pallida*, Guatemala, p. 237, pl. xx, figg. 5 & 5a, *fusca*, Costa Rica, p. 238, pl. xx, figg. 6-6c, *elegans*, Panama, p. 238, pl. xx, figg. 7 & 7a, *bicuspidata*, Panama, p. 238, pl. xx, figg. 8-9a, *interrupta*, Guatemala, p. 239, pl. xx, figg. 15 & 15a, *niveoguttata*, Panama, p. 240, pl. xx, figg. 18-19a, *geminata*, Panama, p. 240, pl. xx, fig. 20, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. spp.
- C.*, g. def. and key to spp., pp. 222-229, *regia*, p. 229, pl. xviii, figg. 12-13d, *sanguinea*, p. 230, *pratensis*, p. 232, pl. xix, figg. 4-5d, *rustica*, p. 233, pl. xix, figg. 8 & 9, *delecta*, p. 238, pl. xx, figg. 10-11b, *aprica*, p. 239, pl. xx, figg. 12-13a, *flavescens*, p. 239, pl. xx, figg. 15-15a, *dybowskii*, p. 239, pl. xx, figg. 16-17a, descr., CAMBRIDGE, F., t. c.
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- Dendryphantès taylori*, ♂ descr., p. 14, pl. iv, figg. 12-12b, *prudens*, p. 15, pl. iv, figg. 13-13b, both from Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii); *D. felix*, ♂, Mexico, p. 313, pl. xxvii, figg. 6-6a, *prosper*, ♂, Texas, p. 314, pl. xxvii, figg. 5-5a, *albipilosus*, Chapoda, p. 316, pl. xxvii, figg. 2-2c, *vicens*, ♂, Para, p. 317, pl. xxvii, fig. 3, *faustus*, hab. not stated, p. 319, pl. xxvii, figg. 1-1b, *tropicus*, Chapoda,

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- D.*, g. discussed, pp. 309-312, *limbatus*, p. 315, *cuprinus*, p. 322, pl. xxvii, fig. 7, notes, PECKHAM, t. c.
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- Dresserus armatus*, El donyo eb Urru, British E. Africa, ♂ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 287, n. sp.
- Dugesiella*, n. g. of *Aviculariidae*, def., p. 551, for *crinita*, Mexico, Pocock, op. cit. viii, p. 552, n. sp.
- Dynamius*, discussed, p. 337, *blandus*, Trinidad, p. 338, pls. xxvi, fig. 1, xxv, figg. 9-9b, *placatus*, Trinidad, p. 339, pls. xxv, figg. 11-11c, xxvi, fig. 1, *fimbriatus*, ♂, Chapoda, p. 340, pls. xxv, figg. 10-10a, xxvi, fig. 12, *parvus*, Brazil, p. 340, pls. xxv, figg. 14-14c, xxvi, fig. 8, *gratus*, ♂, hab. not stated, p. 342, pls. xxv, figg. 8-8a, xxvi, fig. 10, PECKHAM, Tr. Wisconsin Ac. xiii, n. spp.
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- Epingu ornata*, descr., CAMBRIDGE, F., t. c., p. 248, pl. xxi, figg. 14-16.
- Epocilla femoralis*, Sumatra, ♂ descr., *mauriciana*, Mauritius, ♂ descr., SIMON, *Ann. Soc. ent. Belgique* xlv, p. 150; *E. picturata*, ♂, Hongkong, SIMON, *Ann. Soc. ent. France* lxx, p. 62 : n. spp.
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- Eris barbipes*, CAMBRIDGE, F., *Arach. Aran. ii*, in *Biol. Centr.-Amer.* p. 300, pl. xxix, figg. 11 & 11a.
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- Eucyrtops latior*, descriptive notes, HOGG, *P. Z. S.* 1901 (ii), p. 232.
- Euophrys newtoni*, p. 300, pl. xxix, fig. 14, *ysabali*, p. 300, pl. xxix, fig. 15, CAMBRIDGE, F., *Arach. Aran. ii*, in *Biol. Centr.-Amer.*
- E. quilpuensis*, Quilpué, ♀ descr., ♂ descr., Molle, ♀ descr., p. 22, SIMON, *Revis. chilena* v, n. spp.
- Eupalaestris*, n. g. def., for *pugillator*, S. America, Pocock, *Ann. Nat. Hist.* (7) viii, p. 546, n. sp.
- Euryopsis potteri*, ♀, Abyssinia, SIMON, *Ann. Soc. ent. France* lxx, p. 19, n. sp.
- Eurypelma*, a number of genera have been separated from this by Pocock, *Ann. Nat. Hist.* (7) viii, p. 551.
- Festucula vermiformis*, Egypt, ♀ descr., *lineata*, Senegal, ♀ descr., SIMON, *Ann. Soc. ent. Belgique* xlv, p. 155, n. sp.
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- G. tetracantha*, synonymy, p. 329, *cancriformis*, notes etc., p. 329, pl. vii, fig. 11, *canestrinii*, note, p. 330, pl. vii, fig. 12, *kochii*, notes, p. 331, pl. vii, fig. 10, *insulana*, possible identity with other described forms, p. 331, CAMBRIDGE, F., *Ann. Nat. Hist.* (7) vii.

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- Gnaphosa*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. vii, p. 58; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 54.
- G. punctata*, Mongolia, p. 323, pl. xii, fig. 1, *gracilior*, Mongolia, p. 325, pl. xii, fig. 2, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii; *G. porrecta*, ♀, p. 39, *nordlandica*, ♀, p. 41, *norvegica*, ♀, p. 43, *limbata*, p. 45, Norway, STRAND, Norske Selsk. Skr. 1902, No. 2 : n. spp.
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- Gruahara*, n. g. of *Attidae* for *vivida*, ♂, Santarem, Brazil, PECKHAM, Bull. Wisconsin Soc. i, p. 226, pl. ii, figg. 2-2b, n. sp.
- Habrocestum albanum*, ♂, p. 71, *flavimanus*, p. 72, Cape of Good Hope, SIMON, Ann. Soc. ent. France lxx, n. spp.
- Habronattus*, n. g. def., p. 241, key to spp., pp. 242 & 243, *mexicanus* (= *Habrocestum mexicanum*), p. 243, pl. xxi, figg. 1-3b, *viridipes*, p. 244, pl. xxi, figg. 4-5b, *belligerus*, p. 244, pl. xxi, figg. 6 & 6a, *latens*, p. 245, pl. xxi, fig. 7; *paratus*, p. 245, pl. xxi, figg. 8 & 8a, *cæcatus*, *aztecus*, p. 246, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- H. zebaneus*, Mexico, p. 245, pl. xxi, figg. 9 & 9a, *perfidus*, Guatemala, p. 245, pl. xxi, figg. 10 & 10a, CAMBRIDGE, F., t. c., n. spp.
- Hadronyche cerbera*, ♂ descr., HOGG, P. Z. S. 1901 (ii), p. 274, fig. 40.
- Halonoproctina*, n. subfam. of *Ctenizidae* to contain *Halonoproctus*, n. g. *Chorizops* and *Cyclocosmia*, def., Pocock, P. Z. S. 1901 (i), p. 207 [diagnoses of g., p. 209].
- Halonoproctus*, n. g. of *Ctenizidae*, def., p. 208, for *ricketti*, Kuatun, N. W. Fokien, China, descr., p. 209, pl. xxi, figg. 1-1d, Pocock, t. c., n. sp.
- Harpactira pulchripes*, near Grahamstown, ♀ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 287, n. sp.
- Heligomerus deserti*, Kalahari Desert, descr., Pocock, t. c., p. 286, n. sp.
- Heliophanus activus*, ♂ descr., SIMON, Ann. Soc. ent. France lxx, p. 54; *H. patagiatus*, var. *albolineata*, nov., Minusinsk, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 348.
- H. erythropleurus*, Erythraea, name and figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1902, p. 63, pl. ii, fig. 49; *H. cupicola*, Cape of Good Hope, p. 52, *imerinensis*, ♂, Madagascar, p. 53, *mauricianus*, ♂, Mauritius, p. 54, *transvaalicus*, Transvaal, p. 55; *claviger*, Cape of Good Hope, p. 56, *mucronatus*, ♂, Madagascar, p. 57, *putellaris*, ♂, Cape of Good Hope, p. 58, *debilis*, S. Africa, p. 59; *deserticola*, ♂, S. Africa, p. 59, *suedicicola*, ♂, Arabia, Aden, p. 60, SIMON, t. c.; *H. indicus*, Indo-China, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 152 : n. spp.
- Helophora insignis*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 90, pl. viii, fig. 107.
- Helvetia alborivittata*, Paraguay, ♀ descr., p. 157, *zebrina*, Matto-Grosso, ♀ descr., p. 158, *zonata*, Amazons, ♀ descr., p. 158, SIMON, Ann. Soc. ent. Belgique xlv, n. spp.
- Hemiphantes*, n. subg. of *Bathypantes* (q. v.) def. [for *articus*], STRAND, Arch. Naturv. Christian. xxiv, No. 2.
- Hersilia caudata*, figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. i, figg. 16 & 17.
- Heteropoda*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 61; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 60; *H. venatoria*, habits, FLOWER, J. Straits Asiat. Soc., No. 36, p. 45; *H. lutea*, ♂ descr., Almora, LEARDI in AIRAGHI, Atti Mus. Milano xl, p. 89.
- H. hamponi*, ♀, Ootacamund, *nilgirina*, Nilgiri Hills, p. 495, *lentula*, S. India, p. 496, Pocock, J. Bombay Soc. xiii, n. spp.

- Hexathele hochstetteri*, descr., Hogg, P. Z. S. 1901 (ii), p. 276, fig. 41.
- Holoplatys bicolor*, Australia, ♀ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 159, n. sp.
- Homalattoides*, n. g. of *Homalattice* def., p. 289, *roseus*, Panama, p. 294, pl. xxviii, figg. 10-11b, *longipes*, Panama, p. 294, pl. xxviii, figg. 12-12g, *alboquittatus*, Mexico, p. 294, pl. xxviii, figg. 13-13b, CAMBRIDGE, A., Arach. Aran. ii, in Biol. Centr.-Amer., n. spp.
- Homalattus hispidus*, ♀, Mexico, PECKHAM, Bull. Wisconsin Soc. i, p. 229, pl. ii, figg. 5 & 5a, n. sp.
- Hurvus vulpinus*, Ecuador, ♀ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 154, n. sp.
- Hyllus*, discussed, PECKHAM, Tr. Wisconsin Ac. xiii, p. 305.
- Hylobius* (see *Taurongia*, inf. p. 40).
- Hyptiotes paradoxus*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 55, pl. iv, fig. 49; *H.* sp., occurrence in California, KELLOGG, Psyche ix, p. 167.
- Icius desertorum*, S. Africa, ♀ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 161, n. sp.
- Idiocelis palmarum*, Palm Creek, Central Australia, Hogg, P. Z. S. 1901 (ii), p. 242, fig. 26, n. sp.
- Idiommatia*, notes on g., p. 239, *blackwalli*, note, p. 240, Hogg, t. c.
- Idiosoma sigillatum*, notes, Hogg, t. c., p. 230.
- Ilgargus coccineus*, ♂, Brazil, SIMON, Ann. Soc. ent. France lxx, p. 66, n. sp.
- Iridopelma*, n. g. of *Aviculariidae*, def., for *hirsutum*, Brazil, Pocock, Ann. Nat. Hist. (7) viii, p. 550, n. sp.
- Iruira*, n. g. of *Attidae*, for *pulchra*, ♀, Ceylon, PECKHAM, Bull. Wisconsin Soc. i, p. 227, pl. ii, figg. 3-3c, n. sp.
- Ischnocolus lucubrans*, notes, Hogg, P. Z. S. 1901 (ii), p. 244.
- Ischnothele masonica*, Mazoe, Mashonaland, descr., Pocock, Ann. Nat. Hist. (7) vii, p. 337, n. sp.
- Itata tipuloides*, Venezuela, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 144, n. sp.
- Ixamatus*, diagnosed, p. 257, *gregorii*, Macedon, Victoria, p. 258, fig. 33, *broomii*, Hill Grove, N. S. Wales, p. 260, fig. 34, Hogg, P. Z. S. 1901 (ii), n. spp.
- Jollas geniculatus*, Venezuela, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 153, n. sp.
- Jotus*, discussed, p. 331, *frostii*, ♂, Victoria, p. 332, pls. xxv, fig. 12, xxvi, figg. 9 & 9a, *arce pluvii*, ♂, St. Cruz, Australia, p. 333, pls. xxv, fig. 16, xxvi, figg. 5 & 5a, PECKHAM, Tr. Wisconsin Ac. xiii, n. spp.
- Labulla thoracica*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 92, pl. viii, fig. 111.
- Langona*, n. g. of *Salticidae*, def., for *manicata*, Transvaal, SIMON, Ann. Soc. ent. France lxx, p. 70, n. sp.
- Lasiadora*, g. def. and emend., Pocock, Ann. Nat. Hist. (7) viii, p. 544.
- Latouchia*, n. g. of *Ctenizidae*, defined, for *fossoria*, China (Kuatin in N. W. Fokien), pl. xxi, figg. 2 & 2a, *swinhoei*, China (Great Loo Choo), pl. xxi, figg. 3 & 3a, descr., Pocock, P. Z. S. 1901 (i), p. 211, n. spp.
- Lauharulla insulana*, ♂, Tahiti, SIMON, Ann. Soc. ent. France lxx, p. 68, n. sp.
- Lepthyphantes lofotensis*, ♀, Lofoten Is., p. 9, *suffusus*, Hatfjeldalen, p. 12, STRAND, Arch. Naturv. Christian. xxiv, No. 2, n. spp.
- L. nebulosus*, p. 72, pl. vi, fig. 74, *collinus*, p. 73, pl. vi, fig. 75, *abnormis*, p. 73, pl. vi, fig. 76, *minutus*, p. 74, pl. vi, fig. 77, *leprosus*, p. 74, pl. vi, fig. 78, *alacris*, p. 75, pl. vi, fig. 79, *crucifer*, p. 76, pl. vi, fig. 80, *keyserlingii*, p. 76, pl. vi, fig. 81, *pallidus*, p. 77, pl. vi, fig. 82, *angulipalpis*, p. 77, pl. vi, fig. 83, *monticola*, p. 78, pl. vi, fig. 84, *obscurus*, p. 78, pl. vi, fig. 85, *annulatus*, p. 78, pl. vi, fig. 86, *mughi*, p. 79, pl. vi, fig. 87, *lepidus*, p. 79, pl. vi, fig. 88, *mengeri*, p. 80, pl. vii, fig. 89,

- cristatus*, p. 80, pl. vii, fig. 90, *tenebricola*, p. 81, pl. vii, fig. 91, *tenuis*, p. 81, pl. vii, fig. 92, *flavipes*, p. 82, pl. vii, fig. 93, *mansuetus*, p. 82, pl. vii, fig. 94, descr., BÜSENBURG, Zoologica xiii (xxxv).
- Leptorchestes semirufus*, ♀, Ecuador, SIMON, Ann. Soc. ent. France lxx, p. 74, n. sp.
- Linus* discussed and *fimbriatus* fig., PECKHAM, Tr. Wisconsin Ac. xiii, p. 342, pl. xxv, figg. 5-5b.
- Linyphia*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 60; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 58; *L. triangularis*, p. 65, pl. v, fig. 63, *montana*, p. 65, pl. v, fig. 64, *frutetorum*, p. 66, pl. v, fig. 65, *marginata*, p. 67, pl. v, fig. 66, *hortensis*, p. 67, pl. v, fig. 67, *peltata*, p. 68, pl. v, fig. 68, *emphana*, p. 68, pl. v, fig. 69, *phrygiana*, p. 69, pl. v, fig. 70, *clathrata*, p. 69, pl. v, fig. 71, *pusilla*, p. 70, pl. vi, fig. 72, *calypso*, p. 70, pl. vi, fig. 73, descr., BÜSENBURG, Zoologica xiii (xxxv).
- L. passercula*, Jalor, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 54, n. sp.
- Lithyphantes clara*, figure, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer., pl. xxxviii, figg. 6-6d.
- Lollianus perakensis*, Perak, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 75, n. sp.
- Lophomma nivicola*, Lofoten Is., STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 42, n. sp.
- Lycoctenus bogotensis*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., p. 308, pl. xxx, figg. 3-4c.
- Lycosa*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 64; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 62; *L. dimidiata*, var. *virgata*, nov., Mongolia, KULCZYŃSKI, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 345; *L. amentata*, habits and life history, SMITH, Natural. J. x, p. 192, pl. xiii.
- L. solivaga*, ♀, Siberia, KULCZYŃSKI, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 343, pl. xiii, fig. 16; *L. tesquorum*, p. 258, figg. 5 & 6, *foveata*, p. 260, fig. 7, *rieta*, p. 262, figg. 8-11, *incilis*, p. 264, figg. 10-13, *adusta*, p. 266, fig. 14, *selenensis*, p. 268, fig. 15, *lyrata*, p. 270, figg. 18-19, Siberia, ODENWALL, Ofv. Finaka Forh. xliii; *L. cecilii*, Salisbury, marshalli, Umufuli River, ♀ ♀, descr., Pocock, Ann. Nat. Hist. (7) vii, p. 338; *L. goliuthus* ♀, *masteri* ♀, Satara, p. 484, *iranii* ♀, *prolifera* ♀, *fuscana* ♀, E. Poona, p. 485, *pictula* ♀, *madani* ♀, E. Khandesh, p. 486, *yerburyi* ♀, Ceylon, p. 486, Pocock, J. Bombay Soc. xiii; *L. semoni*, Java, SIMON, in SEMON's Zool. Forschungen. Austral. v, p. 350 : n. spp.
- Lyrosceus*, n. g. of *Theraphoside*, defined, for *bonhoteti*, Nassau, Bahamas, F. O. P. CAMBRIDGE, Ann. Nat. Hist. (7) vii, p. 324, pl. vii, figg. 6 & 6a, n. sp.
- Macrothele palpator*, Hong Kong, p. 213, pl. xxi, fig. 4, *holsti*, Laki-ku-li, Central Formosa, p. 214, pl. xxi, fig. 5, descr., Pocock, P. Z. S. 1901 (i), n. spp.
- Mavota dichrura* ♀, Le Para, SIMON, Ann. Soc. ent. France lxx, p. 69, n. sp.
- Mavia* discussed and *vittata* fig., PECKHAM, Tr. Wisconsin Ac. xiii, p. 343, pl. xxv, figg. 7-7b.
- M. poultonii*, Texas, PECKHAM, t. c., p. 344, pls. xxv, figg. 15-15b, xxvi, fig. 3, n. sp.
- Maoriana*, n. g. of *Ctenizide*, defined, p. 236, for *dendyi*, Christchurch, N. Z., Hogg, P. Z. S. 1901 (ii), p. 237, fig. 25, n. sp.
- Marpisa*, g. def. and key to spp., pp. 248 & 249, *melanognatha*, p. 250, pl. xxi, figg. 18-19c, *familiaris*, p. 250, pl. xxii, figg. 1-2a, *magna*, p. 250, pl. xxii, figg. 3-4a, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- M. minor*, Mexico, p. 250, pl. xxii, figg. 5 & 6, *melanura*, Guatemala, p. 251, pl. xxii, figg. 7-7 c, CAMBRIDGE, F., t. c., n. spp.

Marptusa [see *Marpissa antea*], CAMBRIDGE, F., t. c.

Mariusenca, n. g. of *Zoropsidae* for *madagascariensis*, Madagascar, DAHL, SB. Ges. naturf. Berlin 1901, p. 247, n. sp.

Megaphobema, n. g. def., of *Aviculariidae*, Pocock, Ann. Nat. Hist. (7) viii, p. 546.

Messua desidiosa, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer. p. 299, pl. xxix, fig. 10.

Meta menardi, p. 47, pl. iii, fig. 37, *merinae*, p. 47, pl. iii, fig. 38, *segmentata*, p. 48, pl. iii, fig. 39, *mengeti*, p. 49, pl. iii, fig. 40, descr., BÖSENBERG, Zoologica xiii (xxiv).

Meta patagiata, Molle, ♀, p. 18, *aurora*, Molle, ♀, p. 19, descr., SIMON, Revist. chilena v, n. spp.

Metabus gravidus, figured, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer. pl. xxxvii, figg. 7-7e.

Metacyrba, n. g. for *taniola* [= *Cyrba taniola* Peck] descr., p. 252, pl. xxii, figg. 9-10b, CAMBRIDGE, F., op. cit. ii, in Biol. Centr.-Amer.

Metaphidippus, n. g. of *Phidippeae* def., and key to spp., pp. 258-262, *nitidus*, p. 263, pl. xxiii, figg. 5 & 6, *letabilis*, p. 267, pl. xxiv, figg. 5-5b, *dubitabilis*, p. 267, pl. xxiv, fig. 6, *centralis*, p. 269, pl. xxiv, figg. 14 & 15, *hondurensis*, p. 272, pl. xxv, fig. 8, *retrarius*, *nubilus*, p. 272, *capitatus*, p. 272, pl. xxv, figg. 9-10b, *felix*, *vegetus*, p. 273, CAMBRIDGE, F., t. c.

M. mandibulatus, Costa Rica, p. 262, pl. xxiii, figg. 4-4e, *octonotatus*, Guatemala, p. 263, pl. xxiii, figg. 8-9a, *tridentatus*, Guatemala, p. 263, pl. xxiii, figg. 7-7b, *pernix*, Guatemala, p. 264, pl. xxiii, figg. 10-10b, *dentifer*, Guatemala, p. 264, pl. xxiii, figg. 11-11b, *longipalpus*, Panama, p. 264, pl. xxiii, fig. 12-12c, *globosus*, Costa Rica, p. 265, pl. xxiii, figg. 13-13c, *maxillosus*, Mexico, p. 265, pl. xxiii, figg. 14-14d, *apicalis*, Mexico, p. 265, pl. xxiii, figg. 15-16a, *bispinosus*, Guatemala, p. 266, pl. xxiv, figg. 1-2b, *lanceolatus*, Mexico, p. 266, pl. xxiv, figg. 3-3d, *levispinus*, Panama, p. 267, pl. xxiv, figg. 4-4c, *furcillatus*, Mexico, p. 267, pl. xxiv, figg. 7-7b, *furcatus*, Mexico, p. 267, pl. xxiv, figg. 8-8a, *flavolineatus*, Panama, p. 268, pl. xxiv, figg. 9-9c, *variegatus*, Mexico, p. 268, pl. xxiv, figg. 10-11a, *digitatus*, Mexico, p. 269, pl. xxiv, figg. 12-12c, *bicuspidatus*, Guatemala, p. 269, pl. xxiv, figg. 13-13b, *nigropictus*, Mexico, p. 269, pl. xxiv, figg. 16-16b, *pallidatus*, Guatemala, p. 270, pl. xxiv, figg. 17 & 17a, *expallidatus*, Panama, p. 270, pl. xxiv, figg. 18 & 18a, *bicavatus*, Panama, p. 270, pl. xxiv, figg. 19-19d, *cupreus*, Panama, p. 270, pl. xxiv, figg. 20 & 20a, *ovatus*, Guatemala, p. 271, pl. xxv, figg. 1 & 1a, *iridescentis*, Panama, p. 271, pl. xxv, figg. 2 & 2a, *inflatus*, Guatemala, p. 271, pl. xxv, figg. 3 & 3a, *momus*, Guatemala, p. 271, pl. xxv, figg. 4-4c, *quadrinotatus*, Costa Rica, p. 271, pl. xxv, figg. 5-5b, *ochraceus*, Guatemala, p. 272, pl. xxv, figg. 6 & 6a, *pallens*, Guatemala, p. 272, pl. xxv, figg. 7 & 7a, CAMBRIDGE, F., t. c., n. spp.

Mettus reclinis, fig., CAMBRIDGE, O., op. cit. i, in Biol. Centr.-Amer., pl. xxxviii, figg. 8-8e.

Micaria foveata, ♀, Klovimoen, Norway, STRAND, Norske Selsk. Skr. 1900, No. 2, p. 33, n. sp.

Micromata, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 62; nomenclature, DAHL, Arch. Naturg. lxxvii (ii), p. 60.

M. darlingi, Mazoe, Mashonaland, Pocock, Ann. Nat. Hist. (7) vii, p. 339, n. sp.

Midamus rosettii, Almora, LEARDI in ATRAGHI, Atti Mus. Milano xl, p. 90, n. sp.

Mimetes margaritifer, Kelantan, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 54, n. sp.

Misumena, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 62;

- nomenclature, DAHL, Arch. Naturg. lxxvii (ii) p. 60; *M. tricuspidata*, fig., KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. ii, fig. 36.
- M. decolor*, Erythræa, name and fig. only, KULCZYŃSKI, t. c., p. 62, pl. ii, fig. 37, n. sp.
- Modunda phragmitis*, Egypt, p. 160, *ceneiceps*, Taprobane, p. 161, SIMON, Ann. Soc. ent. Belgique xlv, n. spp.
- Mogrus albogularis*, ♂, S. Africa, SIMON, Ann. Soc. ent. France lxx, p. 72, n. sp.
- Mollika*, n. g. of *Attidæ*, def. for *Philæus metalecens* L. K., PECKHAM, Tr. Wisconsin Ac. xiii, p. 303.
- Mygale*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 56; nomenclature, DAHL, Arch. Naturg. lxxvii (ii), p. 50.
- Myrmarachne annandalei*, Kelantan, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 72, n. sp.
- Nagina incunda*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer. p. 298, pl. xxix, fig. 4.
- Naubolus micans*, Matto Grosso, ♀ descr., *posticatus*, Matto Grosso, ♀ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 159, n. spp.
- Nephila clavipes*, discussion of variation in the tufts of hair on the legs, etc., identity with *cornuta* suggested, CAMBRIDGE, F. O. P., Ann. Nat. Hist. (7) vii, p. 325, pl. vii, figg. 1-4.
- N. maculata jalorensis*, Jalor, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 58, n. subsp.
- Nemesia sinensis*, China (Da Lan San), ♀ descr., p. 212, Pocock, P. Z. S. 1901 (i), p. 212, n. sp.
- Nesticus cellularius*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 93, pl. viii, fig. 113.
- Nilakantha*, n. g. of *Attidæ* defined, for *cockerelli*, Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii), p. 8, pl. ii, figg. 1-1g.
- Oarces reticulatus*, ♀ descr. from Molle, SIMON, Revist. chilena v, p. 20.
- Ocristona frenata*, ♂, Hong Kong, SIMON, Ann. Soc. ent. France lxx, p. 63; *O. melanopyga*, Tasmania, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 160, n. spp.
- Onothymus thorelli*, Perak, descr., SIMON, P. Z. S. 1901 (ii), p. 45, n. sp.
- Opisthoncus* discussed, p. 345, *verisimilis*, Victoria, PECKHAM, Tr. Wisconsin Ac. xiii, p. 346, n. sp.
- Oreonetides*, n. subg. for *Erigone vaginata* Th. [= *Marargus adipatus* L. K.], def., STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 29.
- Orsima constricta*, Congo, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 149, n. sp.
- Orsinome marmorea*, S. India, p. 479, *armata*, ♂, Shillong, Assam, p. 480, Pocock, J. Bombay Soc. xiii; *O. phrygiana*, Jalor, descr., SIMON, P. Z. S. 1901 (ii), p. 56 : n. spp.
- Osericta dives*, ♀, Brazil, SIMON, Ann. Soc. ent. France lxx, p. 75, n. sp.
- Oxyopes*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 63; nomenclature, DAHL, Arch. Naturg. lxxvii (ii), p. 61.
- O. hindostanicus*, India, p. 482, *ryvesii*, Allahabad, p. 482, *rufisternis*, Ceylon, p. 483, *wroughtoni*, Bulsar, S. Guzerat, p. 483, Pocock, J. Bombay Soc. xiii; *O. patalongensis*, Patalung, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 70 : n. spp.
- Pachistopelma*, n. g. of *Aviculariidae* for *rufonigrum*, Brazil, Pocock, Ann. Nat. Hist. (7) viii, p. 548, n. sp.
- Pachygnatha clerckii*, p. 56, pl. iv, fig. 50, *listeri*, p. 56, pl. iv, fig. 51, *de Geeri*, p. 57, pl. iv, fig. 52, descr., BÖSENBERG, Zoologica xiii (xxxv).
- Padillothorax*, g. defined, p. 70, for *semiostrinus*, Jalor, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 71, n. sp.
- Palestrina*, n. g. of *Attidæ* def. for *variegata*, Brazil, PECKHAM, Tr. Wisconsin Ac. xiii, p. 304, pl. xxvi, figg. 4-4c, n. sp.

- Pamphobeteus*, n. g. of *Aviculariidae* def., Pocock, Ann. Nat. Hist. (7), viii, p. 545.
- Panyssinus*, n. g. of *Salticidae* def. for *nitens*, Jalor, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 74, n. sp.
- Parabomis*, n. g. def. for *levanderii*, Erythræa, name and figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. ii, figg. 25-27, n. sp.
- Paramarpissa*, n. g. def., *tibialis*, Mexico, p. 252, pl. xxii, figg. 11-11d, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. sp.
- Paraphidippus*, n. g. def. and key to spp., p. 273, *lanipes*, Mexico, p. 275, pl. xxv, figg. 11-11c, *inermis*, Mexico, p. 275, pl. xxv, figg. 12-12d, *marmoratus*, Costa Rica, p. 277, pl. xxvi, figg. 4-4d, CAMBRIDGE, F., t. c., n. spp.
- P. funebris*, p. 275, pl. xxv, figg. 13-14a, *chrysis*, p. 276, pl. xxvi, figg. 1-2f, *disjunctus*, p. 277, pl. xxvi, figg. 3-3c, *fartilis*, p. 278, pl. xxvi, fig. 5, *militaris*, pl. 279, pl. xxvi, figg. 6 & 7, *mexicanus*, p. 279, pl. xxvi, fig. 8, CAMBRIDGE, F., t. c.
- Pardessus*, def., PECKHAM, Tr. Wisconsin Ac. xiii, p. 302; def., p. 221, *mimicus*, p. 221, pl. xviii, figg. 10 & 10a, *gratiosus*, p. 221, pl. xviii, figg. 11 & 11a, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- Pardosa mongolica*, Mongolia, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 346, pl. xiii, fig. 17; *P. potteri*, p. 25, *michi*, p. 26, Abyssinia, SIMON, Ann. Soc. ent. France lxx; *P. laidlawi*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 69 : n. spp.
- Parnenius cuspidatus*, Guatemala, p. 288, pl. xxvii, figg. 14-14d, *fimbriatus*, Guatemala, p. 288, pl. xxvii, figg. 15-15c, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.; *P. discussed*, p. 300, *griseus*, New Mexico, PECKHAM, Tr. Wisconsin Ac. xiii, p. 301, pl. xxvi, figg. 7-7b : n. spp.
- P.* def. and key to spp., p. 287, *cyanidens*, Guatemala, p. 288, pl. xxvii, figg. 12-13b, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- Pedanotheuthus mazaurici*, La Grotte de Trabuc (Gard), SIMON, Bull. Soc. ent. France 1901, p. 238, n. sp.
- Pellenes*, abbreviated descriptions of American spp., pp. 200-208, *hirsutus*, p. 211, *caecatus*, ♂, p. 214, descr., PECKHAM, Bull. Wisconsin Soc. i.
- P. howardii*, Wisconsin, p. 209, pl. i, figg. 1-1b, *brunneus*, ♂, Florida, p. 210, pl. i, fig. 2, *elegans*, ♂, California, p. 212, pl. i, fig. 3, *tranquillus*, ♂, Arizona, p. 213, pl. i, fig. 4, *festus*, Utah, p. 215, pl. i, fig. 5, *klauserii*, ♂, New Mexico, p. 216, pl. i, fig. 6, *limatus*, ♂, California, p. 217, pl. i, fig. 7, *birgei*, ♂, New Mexico, p. 217, pl. i, fig. 8, *townsendii*, ♀, Texas, p. 218, pl. i, fig. 9, *carolinensis*, ♀, Charleston, S. C., p. 219, pl. i, figg. 10-10b, *sabulosus*, ♀, Georgia, p. 219, pl. i, figg. 5, 11 & 11a, *simplex*, ♀, Vera Cruz, Mexico, p. 220, pl. i, fig. 12, *griseus*, ♀, Utah, p. 221, pl. i, fig. 13, *candidus*, ♀, Utah, p. 221, pl. i, fig. 14, *nemoralis*, Arizona, p. 221, pl. i, fig. 15, *superciliosus*, Arizona, p. 222, pl. i, fig. 16, *politus*, ♀, New Mexico, p. 223, pl. i, fig. 17, *placidus*, ♀, Mexico, p. 223, pl. i, fig. 18, *cognatus*, ♀, Kansas, p. 224, pl. i, fig. 19, *dolosus*, Arizona, p. 224, pl. i, fig. 20, PECKHAM, Bull. Wisconsin Soc. i; *P. translatus*, ♂ descr., p. 11, pl. iii, figg. 6 & 6a, *banksi*, ♀ descr., p. 12, pl. iii, figg. 7 & 7a, both from Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii) : n. spp.
- Pensacola*, g. def., p. 220, *signata*, p. 220, pl. xviii, figg. 7-7f, *sylvestris*, p. 220, pl. xviii, figg. 8-8c, *radians*, p. 220, pl. xviii, fig. 9, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- Phanias*, g. def., *flavostriatus*, Mexico, p. 251, pl. xxii, figg. 8-8b, CAMBRIDGE, F., t. c., n. sp.
- Phidippus foveolatus*, Mexico, p. 283, pl. xxvi, figg. 10-10b, *aureopilosus*, Panama, p. 283, pl. xxvi, figg. 11 & 11a, *tuberculatus*, Mexico, p. 283, pl. xxvii, figg. 1-12b, *cruentus*, Mexico, p. 284, pl. xxvii, figg. 4 & 4a,

- brunneus*, Mexico, p. 285, pl. xxvii, figg. 6-7a, *albulatus*, Mexico, p. 285, pl. xxvii, figg. 9-9f, *bidentatus*, Mexico, p. 286, pl. xxvii, figg. 11-11d, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.; *P. ardens*, ♀, New Mexico, p. 288, pl. xxiii, figg. 7 & 7a, *californicus*, ♂, California, p. 289, pl. xxiii, figg. 3 & 3a, *bardus*, Long Is., p. 291, pl. xxiii, fig. 6, *comatus*, New Mexico, p. 291, pl. xxiii, figg. 8-8c, *incertus*, ♀, Hab.? p. 292, pl. xxiv, figg. 1 & 1a, *montivagus*, ♀, Mexico, p. 293, pl. xxiv, figg. 3 & 3a, *tyrellii*, ♂, Canadian Rocky Mts., p. 296, pl. xxiv, fig. 4, *workmanni*, ♀, N. America, p. 297, pl. xxiv, figg. 5 & 5a, *translatus*, ♀, Santarem, p. 298, descr., PECKHAM, Tr. Wisconsin Ac. xiii : n. spp.
- P.*, g. def. and key to spp., p. 280, *carneus*, p. 283, pl. xxvi, figg. 9 & 9a, *arizonensis*, p. 284, pl. xxvii, fig. 3, *georgii*, p. 285, pl. xxvii, fig. 5, *howardi*, p. 285, pl. xxvii, fig. 8, *mexicanus*, p. 286, pl. xxvii, fig. 10, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.; *P. obscurus*, N. Carolina and Texas, p. 294, pl. xxiv, figg. 2-2e, *rauterbergii*, possibly the female of *P. variegatus*, p. 295, pl. xxiv, figg. 6 & 6a, PECKHAM, Tr. Wisconsin Ac. xiii.
- Philæus*, discussion of the g., PECKHAM, t. c., p. 298.
- Phintia viridimicans*, Ecuador, SIMON, Ann. Soc. ent. Belgique xlv, p. 146, n. sp.
- Phlegra micans*, ♂, p. 64, *semipullata*, ♂, p. 65, Hong Kong, *albostrata*, ♂, S. Africa, *thibetana*, ♀, Thibet, p. 73, SIMON, Ann. Soc. ent. France lxx, n. spp.
- Pholcus zichyi*, China, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 326, pl. xii, figg. 3 & 4; *P. vesculus*, Perak, ♀ descr., *diopsis*, Jalor, descr., SIMON, P. Z. S. 1901 (ii), p. 49, n. spp.
- Phormictopus*, n. g. of *Aviculariidae* def., with *Lasiodora cancerides* as type, Pocock, Ann. Nat. Hist. (7) viii, p. 545.
- Phyllonethis lineata*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 94, pl. viii, fig. 114.
- Plator insolens*, descr., KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 340, pl. xiii, figg. 10-13.
- Plesniopelma*, n. g. of *Aviculariidae* def., p. 553, for *myodes*, Uruguay, Pocock, Ann. Nat. Hist. (7) viii, p. 554, n. sp.
- Pochyta spinosa*, ♀, W. Africa, SIMON, Ann. Soc. ent. France lxx, p. 69, n. sp.
- Pæciloneta variegata*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 91, pl. viii, fig. 109.
- Poultonia*, n. g. of *Attidae* for *caudata*, ♂, Chapoda, S. America, PECKHAM, Bull. Wisconsin Soc. i, p. 225, pl. ii, figg. 1-1c, n. sp.
- Porrhomma norvegicum*, Tyssfjorden, STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 25, n. sp.
- Porrhothele*, notes on g., p. 265, *antipodiana*, notes, p. 266, Hogg, P. Z. S. 1901 (ii).
- P. simoni*, Christchurch, N. Z., ♀ descr., Hogg, t. c., p. 269, fig. 37, n. sp.
- Pronous affinis*, Jalor, ♀ descr., SIMON, P. Z. S. 1901, ii, p. 61, n. sp.
- Prosteclina perplexa*, p. 12, pl. iii, figg. 8-8d, *morgani*, p. 13, pl. iv, figg. 9-9d, *venatoria*, p. 13, pl. iv, figg. 10-10d, *viaria* (♂ only), p. 14, pl. iv, figs. 11-11b, all from Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii), n. spp.
- Prothesima albomaculata*, Salisbury, Mashonaland, ♀ descr., CAMBRIDGE, O. P., P. Z. S. 1901 (i), p. 11, pl. v, figg. 2-2c; *P. mediocris*, Erythræa, name and figg. of epigyne only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. i, fig. 6 : n. spp.
- P. iazartensis*, notes, KULCZYŃSKI in HORVÁTH's Zool. Ergebn. Zichy ii, p. 323.

- Pseudamycus relucens*, ♂, p. 63, *bicoronatus*, ♂, p. 64, Hong Kong, SIMON, Ann. Soc. ent. France lxx, n. spp.
- Pseudicus musculus*, Africa, ♀ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 160, n. sp.
- Pseudogonatium*, n. g., of *Theridiidae* def. for *fuscomarginatum*, Tysfjorden, STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 37, n. sp.
- Pterinopelma*, n. g. of *Aviculariidae* def. for *Eurypelma vitiosum*, Pocock, Ann. Nat. Hist. (7) viii, p. 551.
- Ptocasius strupifer*, ♂, Hong Kong, SIMON, Ann. Soc. ent. France lxx, p. 65, n. sp.
- Pyresthesis cribrata*, Abyssinia, SIMON, t. c., p. 22, n. sp.
- Pythonissa punctata*, pl. i, figg. 7-10, *simplex*, pl. i, figg. 12 & 13, from Erythræa, name and figg. only, KULCZYŃSKI, Bull. Ac. Cracovie, 1901 p. 62, n. spp.
- P. plumalis*, figg., KULCZYŃSKI, t. c., p. 62, pl. i, figg. 8 & 9, 11.
- Racius aculeatus*, Congo, DAHL, SB. Ges. naturf. Berlin 1901, p. 188, n. sp.
- Rhitymna xanthopus*, Kelantan, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 65, n. sp.
- Rubrius mordax*, figured, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer., pl. xxxvii, figg. 1-1e.
- Rudra*, g. def., p. 254, *geniculata*, p. 255, pl. xxii, figg. 13-13e, *polita*, p. 255, pl. xxii, fig. 14, CAMBRIDGE, F., op. cit. ii, in Biol. Centr.-Amer.
- Runciniopsis aethiops*, Abyssinia, SIMON, Ann. Soc. ent. France lxx, p. 21, n. sp.
- Saitidops*, n. g. of *Salticidae* def. for *clathratus*, ♂, Venezuela, SIMON, t. c., p. 72, n. sp.
- Saitis catulus*, ♂, Venezuela, p. 66, *lusitanicus*, ♂, Portugal, p. 67, *cyanipes*, ♂, Brazil, p. 67, *breviusculus*, ♀, W. Africa, p. 67, *vespertilio*, ♂, E. Australia, p. 68, SIMON, t. c.; *S. inutilis*, ♂ descr., p. 10, pl. iii, fig. 4-4b, *deflocatus*, ♀ descr., p. 11, pl. iii, figg. 5 & 5a, both from Jamaica, PECKHAM, G. W. & E. G., P. Z. S. 1901 (ii) : n. spp.
- Salpesia soricina*, ♀, Seychelles, SIMON, Ann. Soc. ent. France lxx, p. 70, n. sp.
- Salticus*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 65; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 63; *S. attenuatus*, Singapore, immature ♀ described, O. P. CAMBRIDGE, P. Z. S. 1901 (i), p. 15, pl. v, figg. 6-6c.
- Scotophaeus corruscus*, fig. of epigyne, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. i, fig. 5.
- Scoturius tigris*, Brazil, SIMON, Ann. Soc. ent. Belgique xlv, p. 154, n. sp.
- Scytodes*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 60; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 58; *S. humilis*, figg., KULCZYŃSKI, Bull. Ac. Cracovie 1901, pl. i, figg. 1 & 2.
- S. affinis*, Erythræa, name and figg. only, KULCZYŃSKI, t. c., p. 62, pl. i, figg. 3 & 4, n. sp.
- Sebastira instrata*, ♂, Venezuela, SIMON, Ann. Soc. ent. France lxx, p. 76, n. sp.
- Segestria*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 57; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 54.
- Selenocosmia stirlingi*, Australia, p. 245, fig. 27, *vulpina*, Queensland, p. 246, fig. 28, Hogg, P. Z. S. 1901 (ii), n. spp.
- Selenops basutus*, Teyeatyaneng, in Basutoland, ♀ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 288; *S. aculeatus*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 64 : n. spp.
- Selenotypus plumipes*, notes, Hogg, P. Z. S. 1901 (ii), p. 249.
- Selimus*, n. g. of *Attidae*, for *venustus*, ♂, Brazil, PECKHAM, Tr. Wisconsin Ac. xiii, p. 329, pl. xxviii, figg. 10-10c, n. sp.

- Semorina seminuda*, ♀, *iris*, ♀, Venezuela, SIMON, Ann. Soc. ent. France lxx, p. 75, n. spp.
- Semora trochilus*, Venezuela, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 141, n. sp.
- Seramba pennata*, Nawng-Chik, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 66, n. sp.
- Servæa*, descr., PECKHAM, Tr. Wisconsin Ac. xiii, p. 302, pl. xxv, figg. 2-2b.
- Shira designata*, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer. p. 298, pl. xxix, fig. 6.
- Sidusa inermis*, Mexico, p. 209, pl. xvi, figg. 3-4a, *maxillosa*, Guatemala, p. 210, pl. xv, figg. 8-9c, *marmorea*, Panama, p. 211, pl. xv, figg. 10 & 10a, *olivacea*, Guatemala, p. 211, pl. xv, figg. 11 & 11a, *pallida*, Guatemala, p. 211, pl. xv, fig. 12, *denticelis*, Mexico, p. 212, pl. xv, figg. 13-13b, *minuta*, Mexico, p. 212, pl. xv, figg. 14-14b, *nigropicta*, Panama, p. 212, pl. xv, figg. 15-15d, *penicillata*, Mexico, p. 212, pl. xvi, figg. 5-6c, *vittata*, Guatemala, p. 213, pl. xvi, figg. 7-7b, *nigrina*, Mexico, p. 213, pl. xvi, figg. 8-8c, *albida*, Mexico, p. 213, pl. xvi, fig. 9, *cristata*, Mexico, p. 213, pl. xvi, figg. 10-10c, *epirorbis*, Panama, p. 214, pl. xvi, figg. 11-11e, *nigrienter*, Panama, p. 214, pl. xvi, figg. 12 & 13, *murcida*, Guatemala, p. 214, pl. xvi, figg. 14 & 14a, *fulvoguttata*, Mexico, p. 214, pl. xvii, figg. 1 & 1a, *albicincta*, Guatemala, p. 215, pl. xvii, figg. 2 3a, *circumcincta*, Mexico, p. 216, pl. xvii, fig. 9, *quadriguttata*, Mexico, p. 216, pl. xvii, figg. 10 & 10a, *brevispina*, Guatemala, p. 217, pl. xvii, figg. 11 & 12, *lutea*, Mexico, p. 217, pl. xvii, fig. 13, *spiralis*, Mexico, p. 217, pl. xvii, figg. 14-14e, *voluta*, Panama, p. 218, pl. xvii, figg. 15 & 15a, *sulphurea*, Panama, p. 218, pl. xvii, figg. 16-17b, *flavida*, Guatemala, p. 219, pl. xviii, figg. 1 & 2, *binotata*, Mexico, p. 219, pl. xviii, fig. 3, *excavata*, Guatemala, p. 219, pl. xviii, figg. 4-4b, CAMBRIDGE, F., t. c., n. spp.
- S.*, g. def. and keys to spp., pp. 196-208, *festiva*, p. 208, pl. xvi, figg. 1-2g *recondita*, p. 209, pl. xv, figg. 6-7d, *parvula*, p. 215, pl. xvii, figg. 4 & 5, *consecta*, p. 216, pl. xvii, figg. 6-7g, *alacris*, p. 216, pl. xvii, figg. 8 & 8a, *opima*, p. 219, pl. xviii, figg. 5 & 6, descr., CAMBRIDGE, F., t. c.
- Siler pulcher*, Kelantan, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 75, n. sp.
- Simætha*, discussed, *severa*, Singapore, PECKHAM, Tr. Wisconsin Ac. xiii, pp. 306 & 307, pl. xxv, figg. 3-3b, n. sp.
- Singa hamata*, p. 49, pl. iii, fig. 41, *nitidula*, p. 50, pl. iv, fig. 42, *heerii*, p. 51, pl. iv, fig. 43, *albonittata*, p. 51, pl. iv, fig. 44, *sanguinea*, p. 52, pl. iv, fig. 45, *pygmaea*, p. 53, pl. iv, fig. 46, descr., BÖSENBERG, Zoologica xiii (xxxv).
- Sparassus claviger*, Salisbury, ♂ descr., p. 339, *darlingi*, Enkeldoorn, Mashonaland, ♂ descr., p. 339, *spinipalpis*, Salisbury, ♂ descr., p. 340, Pocock, Ann. Nat. Hist. (7) vii; *S. xerxes*, Omara, on the Mekran Coast, p. 489, *maynardi*, Jacobabad, *pyrozonis*, ♀, Assam, p. 490, *hampsoni*, ♀, Nilgiri Hills, *fuligineus*, ♀, Satara, p. 491, *admiratus*, ♀, Bombay, *iranii*, ♀, Baluchistan, *pearsoni*, ♀, Poona Ghata, p. 492, *obesulus*, ♀, E. Poona, *rotundiceps*, S. India, p. 493, *milleti*, ♂, Nasik, *greeni*, Ceylon, p. 494, Pocock, J. Bombay Soc. xiii; *S. annandalei*, Nawng-Chik, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 65: n. spp.
- Spermophora tessellata*, Jalor, ♀ descr., SIMON, t. c., p. 50, n. sp.
- Stasimopus insculptus*, King William's Town, ♂ descr., Pocock, Ann. Nat. Hist. (7) vii, p. 285, n. sp.
- Steatoda perakensis*, Perak, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 53, n. sp.
- Stemonyphantes bucculentus*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 92, pl. viii, fig. 110.
- Stenodina*, vid. *Coprocrossa*, p. 27.

- Stenygrocercus broomi*, Hill Grove, N. S. W., ♀ descr., Hogg, P. Z. S. 1901 (ii), p. 270, fig. 38, n. sp.
- Storena obnubila*, Perak, ♀ descr., *sciophana*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 48, n. spp.
- Synama globosum*, var. *nigriventris*, nov., Krasnojarsk, descr., KULCZYŃSKI, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 336.
- Synageles venator*, occurrence in Britain, SMITH, Sci. Gossip (n. s.) viii, p. 115.
- Tacuna*, n. g. of *Attidæ*, for *delecta*, ♂, Rio Janeiro, PECKHAM, Bull. Wisconsin Soc. i, p. 228, pl. ii, figg. 4-4c, n. sp.
- Tapinoba longidens*, descr., BÖSENBERG, Zoologica xiii (xxxv), p. 93, pl. viii, fig. 112.
- Taurongia*, nom. nov., for *Hyllobius*, previously used for a g. of *Coleoptera*, Hogg, P. Z. S. 1901 (ii), p. 579 (see Hogg, P. Soc. Victoria xiii, p. 82).
- Tegenaria*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 59; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 57.
- Telamonia mustelina*, ♂, Hongkong, SIMON, Ann. Soc. ent. France lxx, p. 61; *T. olorina*, Taprobane, ♂ descr., SIMON, Ann. Soc. ent. Belgique xlv, p. 152 : n. spp.
- Tengella*, n. g. of *Zoropsidæ*, for *perfuga*, ♀, S. America, DAHL, SB. Ges. naturf. Berlin 1901, p. 251, n. sp.
- Tetragnatha*, type sp. of the g., CAMBRIDGE, F., Ann. Nat. Hist. (7) vii, p. 61; nomenclature, DAHL, Arch. Naturg. lxvii (ii), p. 59; *T. solandrii*, p. 58, pl. iv, fig. 53, *montana*, p. 58, pl. iv, fig. 54, *extensa*, p. 59, pl. iv, fig. 55, *obtusa*, p. 60, pl. iv/v, fig. 56, *nigrita*, p. 60, pl. iv/v, fig. 57, *pinicola*, p. 61, pl. iv/v, fig. 58, *punctipes*, p. 61, pl. iv, fig. 59, descr., BÖSENBERG, Zoologica xiii (xxxv); *T. extensa*, notes, STRAND, Norske Selsk. Skr. 1900, No. 2, p. 23.
- T. celestis*, p. 478, *paradisea*, ♀, p. 479, both from Shillong, in Assam, Pocock, J. Bombay Soc. xiii; *T. novia*, Jalor, descr., SIMON, P. Z. S. 1901 (ii), p. 55 : n. spp.
- Thalassius fulvus*, Erythræa, name and figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 63, pl. ii, fig. 48, n. sp.
- Thanatus sibiricus*, Siberia, KULCZYŃSKI, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 337, pl. xiii, fig. 9, n. sp.
- Thaumasia uncata*, Panama, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer. p. 309, pl. xxx, figg. 6 & 7, n. sp.
- T. velox*, CAMBRIDGE, F., t. c., p. 309, pl. xxx, figg. 5-5c.
- Thecticopsis hercules*, Ceylon, p. 487, *ajaz*, S. India, *virescens*, ♂, Travancore, S. India, *rufulus*, ♂, Nilgiri Hills, p. 488, *bicornutus*, ♂, Assam, p. 489, Pocock, J. Bombay Soc. xiii, n. spp.
- Theridiosoma nebulosum*, Jalor, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 62, n. sp.
- Theridium eigenmanni*, Texas, nom. nud., EIGENMANN, P. Amer. Ass. xlix, p. 230; *T. subradiatum*, Jalor, ♂ descr., SIMON, P. Z. S. 1901 (ii), p. 52 : n. spp.
- T. trepidarium* descr., BÖSENBERG, Zoologica xiii (xxxv), p. 96, pl. viii, figg. 115.
- Thiania chrysogramma*, ♀, Hong Kong, SIMON, Ann. Soc. ent. France lxx, p. 61; *T. subserena*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 73 : n. spp.
- Thomisus bidentatus*, Erythræa, name & figg. only, KULCZYŃSKI, Bull. Ac. Cracovie 1901, p. 62, pl. ii, figg. 32-34; *T. spiculator*, Salisbury, Pocock, Ann. Nat. Hist. (7) vii, p. 340, n. spp.
- Thotmes*, n. g. def., p. 240, *paykulli*, p. 240, pl. xx, figg. 21-21a, *fannæ*, p. 241, pl. xx, figg. 22 & 22a, *bicolor*, p. 241, descr., CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.

- Thyene varians*, Madagascar, PECKHAM, Tr. Wisconsin Ac. xiii, p. 308, n. sp.
- T.*, g. discussed and *imperialis* fig., PECKHAM, t. c., p. 307, pl. xxv, figg. 4-4b.
- Tinus*, n. g. of *Pisauridæ*, def. p. 310, *nigrinus*, Guatemala, p. 310, pl. xxx, figg. 8 & 9, *tibialis*, Mexico, p. 311, pl. xxx, figg. 10 & 11, *minutus*, Mexico, p. 311, pl. xxx, figg. 12, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., n. spp.
- Titus*, n. g. of *Drassidæ* defined, p. 12, for *lugens*, Salisbury, Mashonaland, ♀ described, CAMBRIDGE, O. P., P. Z. S. 1901 (i), p. 13, pl. v, figg. 3-3e, n. sp.
- Tomis*, n. g. of *Homalattæ* def. for *palpalis*, Mexico, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer., p. 296, pl. xxix, figg. 1-1b, n. sp.
- Trochosa insignis*, figured, CAMBRIDGE, O. P., op. cit. i, in Biol. Centr.-Amer., pl. xxxviii, figg. 7-7e.
- Tulpinus hilarus*, CAMBRIDGE, F., op. cit. ii, in Biol. Centr.-Amer., p. 299, pl. xxix, fig. 9.
- Tutelina rosenbergi*, Ecuador, ♂ descr., SIMON, Ann. Soc. ent. Belgique, xlv, p. 149, n. sp.
- Uloborus walckenaerii* descr., BÖSENBERG, Zoologica xiii (xxxv), p. 54, pl. iv, fig. 48; *U. signatus*, pl. xxxviii, figg. 9-10c, *variegatus*, pl. xxxviii, figg. 11-11g, *vicinus*, pl. xxxviii, figg. 12-12d, CAMBRIDGE, O. P., Arach. Aran. i, in Biol. Centr.-Amer.
- Uthina atrigularis*, Malay Peninsula, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 51, n. sp.
- Utopiellum*, n. subg. for *Erigone mirabilis* L. K., def., STRAND, Arch. Naturv. Christian. xxiv, No. 2, p. 31.
- Viroqua*, n. g. of *Attidæ* def. for *Jotus ultimus*, PECKHAM, Tr. Wisconsin Ac. xiii, p. 334.
- Xenesthis* def., POCOCK, Ann. Nat. Hist. (7) viii, p. 546.
- Xysticus inæqualis*, p. 333, pl. xiii, fig. 4, *connectens*, p. 335, pl. xiii, fig. 5, China, KULCZYŃSKI, in HORVÁTH's Zool. Ergebn. Zichy ii; *X. norvegicus*, ♀, Skarmodal, p. 175, *augur*, ♀, Nadelholz, p. 178, *sexangulatus*, ♀, Skarmodal, p. 180, STRAND, Abh. Ges. Göttingen xxiii : n. spp.
- Xysticus rainbowi* nom. nov. for *obscurus*, præocc., STRAND, Zool. Anz. xxiv, p. 66.
- Zenodorus*, discussion of the g., PECKHAM, Tr. Wisconsin Ac. xiii, p. 299.
- Zilla thorellii*, p. 42, pl. iii, fig. 31, *kochii*, p. 43, pl. iii, fig. 32, *montana*, p. 44, pl. iii, fig. 33, *stræmii*, p. 45, pl. iii, fig. 34, *x-notata*, p. 45, pl. iii, fig. 35, *atrica*, p. 46, pl. iii, fig. 36, descr., BÖSENBERG, Zoologica xiii (xxxv).
- Zoropsis quedenfeldti*, Tangiers, p. 192, *triangularis*, Tangiers, p. 193, *bilineata*, Algiers, p. 194, *certzeni*, Albania, p. 195, DAHL, SB. Ges. naturf. Berlin 1901, n. spp.
- Zygoballus*, g. def. and key to spp. p. 289, *rufipes*, p. 291, pl. xxvii, figg. 16-16h, xxviii, figg. 1 & 1a, *remotus*, p. 291, pl. xxviii, fig. 2, *minutus*, p. 292, pl. xxviii, figg. 5 & 6, CAMBRIDGE, F., Arach. Aran. ii, in Biol. Centr.-Amer.
- Z. tibialis*, Guatemala, p. 292, pl. xxviii, figg. 3-4c, *maculatus*, Guatemala, p. 292, pl. xxviii, figg. 7 & 7a, CAMBRIDGE, F., t. c., n. spp.
- Zygometa*, n. g. of *Thomisidæ* for *crustulata*, Perak, ♀ descr., SIMON, P. Z. S. 1901 (ii), p. 63, n. sp.

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For diagnoses of all spp. of *Solifuga*, see KRAEPELIN (96).

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Dessia tuetana, var. *algeriensis* nov., Algeria, KRAEPELIN, Abh. Ver. Hamburg xvi (i), No. 4, p. 6.

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[See Titles, Nos. 5, 45, 46, 69, 90, 91, 100, 179, 207.]

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C. borneoensis, Borneo, ELLINGSEN, Bull. Soc. zool. France xxvi, p. 206; *C. cocophilus*, Kelantan, descr., SIMON, P. Z. S. 1901 (ii), p. 79; *C. sjostedti*, Cameroons, p. 97, *camerunensis*, Cameroons, p. 99, TULLGREN, Ent. Tidskr. xxii (1901) : n. spp.

Chthonius sinuatus, Cameroons, TULLGREN, t. c., p. 100, n. sp.

Garypus personatus, Kelantan, descr., SIMON, P. Z. S. 1901 (ii), p. 79, n. sp.

Ideobisium strandi, Aal in Hallingdal, Norway, ELLINGSEN, Bull. Soc. zool. France xxvi, p. 88, n. sp.

Obisium muscorum, on Castle Rock, Edinburgh, GODFREY, R., Ann. Scott. Nat. Hist. x, p. 118.

O. muscorum, nesting habits, GODFREY, t. c., p. 215.

Roncus cambridgi, occurrence in Scotland, EVANS, W., Ann. Scott. Nat. Hist. x, pp. 53 & 54.

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Synopses of N. American Phalangida, BANKS (7).

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- Aturus protzi*, Mauth, PIERSIG, t. c., p. 33; *A. crassipalpis*, Saxon Switzerland, PROTZ, Zool. Anz. xxv, p. 1 : n. spp.
- Bryobia serrata*, notes, TRÄGÅRDH, Bih. Svenska Ak. xxvi, 4, No. 7, p. 20, pl. ii, figg. 9 & 10.
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- Celenogamasus*, n. g. of *Mesostigmata* for *hirtellus*, Chili, BERLESE & LEONARDI, Zool. Anz. xxv, p. 13, n. sp.
- Celenopsis cryptodonta*, Chili, BERLESE & LEONARDI, t. c., p. 13, n. sp.
- Cillibano heliocopridis*, Java, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. vii, p. 74, pl. iii, figg. 49-52, n. sp.
- Curvipes piersigi*, notes, DADAY, Termes. Fuzetek xxiv, p. 52, figg. 25a-g.
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- Discopoma expansa*, Tacurù Pucu, *termitophila*, Coxipò, BERLESE & LEONARDI, Zool. Anz. xxv, p. 14; *D. expansa*, Paraguay in nests of *Anoplotermis pacifici*, *termitophila*, Coxipò, in nests of *Eutermis heteroptera*, SILVESTRI, Boll. Mus. Torino xvi, No. 398, p. 22 : n. spp.
- Eremaeus complanatus*, Chili, BERLESE & LEONARDI, Zool. Anz. xxv, p. 12, n. sp.
- Eulais dadayi*, nom. nov. for *E. infundibulifera*, PIERSIG & LOHMANN, Das Tierreich, Lief 13, p. 308.
- Eylais zichyi*, Siberia, p. 400, *csikii*, Russia, p. 405, *affinis*, Russia, p. 408, *rossica*, Russia, p. 414, descr. and figg., DADAY in HORVÁTH's Zool. Ergebn. Zichy ii; *E. schauinslandi*, Cook St., New Zealand, KOENIKE, Zool. Jahrb. Syst. xiii, p. 125; *E. deciduus*, East London Waterworks, p. 68, *georget*, Britain, p. 68, *projectus*, Norfolk Broads, p. 69, SOAR, Sci. Gossip (n. s.) viii : n. spp.
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- Glycyphagus*, g. discussed, p. 226, *domesticus*, p. 238, pls. vi, viii, figg. 3, 7, 10, 12, 14, 16, *spinipes*, p. 245, pls. vii & viii, figg. 1, 2, 4-6, 11, 13, 15, 17, *plumiger*, p. 250, pls. ix, xi, figg. 1-7, *canestrinii*, p. 255, pls. x & xi, figg. 8-23, *platygaster*, p. 265, pls. xiv, xvii, figg. 1-4, *dispar*, p. 271, pl. xv, *crameri*, p. 275, pls. xvi & xvii, figg. 5-11, *sciurinus*, p. 283, pls. xviii & xix, descr., MICHAEL, Brit. Tyroglyph. i.
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- Heterozoon latus*, Paraguay, in tests of *Anoplotermis pacifici*, SILVESTRI, Boll. Mus. Torino xvi, No. 398, p. 21, n. sp.
- Hispidosperchon*, n. subg. of *Sperchon* for *S. setiger*, *elegans*, THOR, Arch. Naturv. Christian. xxiii, No. 4, p. 24.
- Histiostoma*, g. discussed, p. 200, *rostrum serratum*, p. 208, pls. ii & iii, figg. 1-12, *pulchrum*, p. 217, pl. iv, figg. 4-10, descr., MICHAEL, Brit. Tyroglyph. i.
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- Hjardtadalia*, n. g. of *Hydrachnida* def. for *runcinata*, Norway, THOR, Zool. Anz. xxiv, p. 673, n. sp.
- Hyalomma aegyptium*, varieties, p. 313, *longirostris*, descr., p. 315, NEUMANN, Mem. Soc. zool. France xiv; *H. aegyptium*, possibly includes *Ixodes arenicola*, TULLGREN, Ent. Tidskr. xxii, p. 102.
- H. rhipicephaloides*, Egypt, NEUMANN, Mem. Soc. zool. France xiv, n. sp.
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- Hypopus minutus*, Java, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. vii, p. 85, pl. iii, figg. 55 & 56, n. sp.
- Ischyrognathus*, n. g. of *Halacaridae*, for *coutieri*, Djibouti, TROUSSERT, Bull. Soc. zool. France xxvi, p. 145, n. sp.
- Ixodes*, notes, descriptions and synonymy of spp., NEUMANN, Mem. Soc. zool. France xiv, pp. 281-289; *I. arenicola*, possibly identical with *Hyalomma aegyptium*, TULLGREN, Ent. Tidskr. xxii, p. 102.
- T. rubidus*, ♀, Mexico, p. 282, *inermis*, ♀, hab. unknown, p. 283, *parvirostris*, ♀, Yezo, p. 284, *tenuirostris*, ♀, Is. of Rugen, p. 286, *acuminatus*, ♀, Gênes, p. 287, *schillingsi*, ♀, E. Africa, p. 288, NEUMANN, Mem. Soc. zool. France xiv, n. spp.
- Krendowskia ovata*, description of the nymph, WOLCOTT, Tr. Amer. Micr. Soc. xxii, p. 109, pl. xxi, fig. 6.
- Laminipes*, nom. nov. for *Piona* (Neumann non Koch), PIERSIG, Zool. Anz. xxiv, p. 219.
- Lebertia oudemansi*, Hammerfest, descr., OUDEMANS, Tijdschr. Ent. xl, p. 240, n. sp.
- Lentungula ulgivorans*, descr., MICHAEL, Brit. Tyroglyph. i, p. 196, pl. i.
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- Mealia*, n. g. of *Tyroglyphinae*, defined, p. 82, *pteronysina*, p. 83, *longior*, ♂, p. 84, on hides, TROUSSERT, Bull. Soc. zool. France xxvi, n. spp.
- Mesobates*, n. g. of *Hydrachnida*, for *forcipates*, Norway, THOR, Zool. Anz. xxiv, p. 677, n. sp.
- Michaelia sylvestrana*, Chili, BERLESE & LEONARDI, Zool. Anz. xxv, p. 15, n. sp.
- Neoliodes americanus*, Buenos Aires, BERLESE & LEONARDI, op. cit. xxiv, p. 12, n. sp.
- Neoparasitus*, n. g., for *oudemansi*, Java, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. vii, p. 53, pl. i, figg. 1-9, n. sp.
- Neumania setosa*, Norway, ♂ descr., THOR, Arch. Naturv. Christian. xxiii, No. 4, p. 39, pl. xix, figg. 188-190, n. sp.
- Nothrus maximus*, living and fossil, in Patagonia, TRÄGÅRDH, Zool. Anz. xxiv, p. 25, n. sp.
- Notophallus insularis*, descr., TRÄGÅRDH, Bih. Svenska Ak. xxvi, 4, No. 7, p. 16, pl. ii, fig. 4.

- Nycteridocoptes*, n. g. of *Sarcoptidae*, for *popei*, in ear of a Bat, OUDEMANS, Tijdschr. Ent. xl, pl. xi, p. 270, n. sp.
- Oribates longicornutus*, Chili, BERLESE & LEONARDI, Zool. Anz. xxv, p. 13, n. sp.
- Ornithodoros savignyi*, var. *cæcus*, p. 256, *coriaceus*, *talaje*, p. 258, *canestrinii*, p. 260, notes, NEUMANN, Mem. Soc. zool. France xiv; *O. megnini*, description of a problematical stigmatic organ, WHEELER, J. Quekett Club (2) viii, p. 61.
- O. pavimentosus*, Gt. Namaqualand, p. 257, *æqualis*, Caucasus, p. 259, NEUMANN, Mem. Soc. zool. France xiv, n. spp.
- Pachylaelaps minutus*, Java, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. vii, p. 56, pls. i, figg. 13-16, 18 & 19, 21-25, ii, figg. 17, 20, 26-29, n. sp.
- Parasitus longulus*, var. *robusta*, nov., Juist, nom. nud., OUDEMANS, Abh. Ver. Bremen xvii, p. 227.
- Pentaleus arcticus*, Bären Is., TRÄGÅDH, Bih. Svenska Ak. xxvi, 4, No. 7, p. 19, pl. ii, figg. 5 & 6, n. sp.
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- Pionacercus pyriformis*, N. Wales, descr., SOAR, J. Quekett Club (2), viii, p. 47, pl. v, n. sp.
- Pneumonyssus*, n. g. of *Dermanyssidae* for *simicola*, in lungs of *Cynocephalus* from S. Sumatra, DE HAAN & GRIJNS, Centrbl. Bakter. xxx, p. 7, n. sp.
- Pseudocheylus erythræoides*, Chili, BERLESE & LEONARDI, Zool. Anz. xxv, p. 15, n. sp.
- Pseudozus*, n. g. of *Hydrachnidae* for *integer*, Norway, THOR, Arch. Naturv. Christian. xxiii, No. 4, p. 18, pl. xix, figg. 185-187, n. sp.
- Rhagidia gelida*, notes, TRÄGÅDH, Bih. Svenska Ak. xxvi, 4, No. 7, p. 18, pl. ii, fig. 2 & 3.
- Rhipicephalus appendiculatus*, S. Africa, p. 270, *maculatus*, Cameroons, p. 273, *oculatus*, Damaraland, p. 274, *ecinctus*, hab. unknown, p. 275, NEUMANN, Mem. Soc. zool. France xiv, n. spp.
- R. armatus*, Somaliland, p. 271, *annulatus*, discussed, p. 276, NEUMANN, t. c.
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- Sinaris leegei*, Juist, OUDEMANS, Abh. Ver. Bremen xvii, p. 225, pl. iii, figg. 9-17.
- Sperchon longipes*, p. 282, *montanus*, Böhmer Wald, p. 284, THON, Zool. Anz. xxiv; *S. papillosus*, Norway, THOR, Zool. Anz. xxiv, p. 679 : n. spp. See also *Hispidosperchon*, p. 45, and *Squamosperchon* inf.
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- Tyroglyphus viduus*, Argentina, BERLESE & LEONARDI, Zool. Anz. xxv, p. 12; *T. viduus*, Argentina in nests of *Eutermitis arenarii fulv-capitis*, SILVESTRI, Boll. Mus. Torino xvi, No. 398, p. 24; *T. trifolium*, Java, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. vii, p. 86, pl. iii, figg. 57-61 : n. spp.
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PENTASTOMIDA.

See Titles, Nos. 61, 81, 117.



XII. MYRIOPODA AND PROTO- TRACHEATA.

BY

ALBERT BROWN.

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INTRODUCTION.

THE Records of *Myriopoda* and *Prototracheata* for 1901 show as marked an increase in the number of titles as the other Records of *Arthropoda*.

VERHOEFF contributes no less than 14 papers to this Record though some of these were published prior to 1901. The series of papers on Palearctic *Myriopoda* which he has been issuing for some years past is brought to a conclusion by the publication of the twentieth.

Some important papers have also been published by Pocock, dealing with Chilopods and with questions of nomenclature. Examination of the Systematic Index will show that more attention has been paid to the *Chilopoda* than for some years past.

EVANS' contributions to the literature of *Peripatus* are of great importance and his classification worthy of note. Opinion has wavered during the past few years as to the desirability of splitting up the original genus *Peripatus* into a number of others. The tendency has been rather to

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recognise sub-genera than genera. But so many new forms have been described that the most convenient course would now appear to be followed in recognising several genera. The works of BOUVIER are interesting continuations of the previous works of this accomplished naturalist. In one of his papers he shows that *P. capensis* and *P. brevis* are probably identical and in retaining the former and younger name makes the following remark which may be commended to those interested in the search for the earliest zoological names of species and genera: "La nomenclature zoologique n'a que trop de tendances à se compliquer depuis peu et à devenir inintelligible par suite de la substitution de noms anciens, mais ignorés, à des noms d'origine plus récente mais bien connus et d'usage courant."

The new species and genera are distributed as follows:—

	n. gg.	n. subgg.	n. spp.	n. subsp.
<i>Chilopoda</i>	3	1	33	6
<i>Diplopoda</i>	15	8	83	17
<i>Prototracheata</i>	2	0	5	0
Totals	20	9	121	23

MYRIOPODA.

I. TITLES.*

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1. Morphology.

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Structure of the last segment of the Leg in *Myriopoda*, DE MEIJERE (29).

Anatomy of the Copulatory Feet of *Iulida*, ZEHNTER (61). Gonopods of *Polymicrodon*, VERHOEFF (57), p. 227. Gonopods of *Odontopyge*, VERHOEFF (50).

Abnormal copulatory organs in a *Polydesmus*, BRÖLEMANN (13), p. 239.

Second pair of legs in female of *Heteroporatia*, VERHOEFF (56), p. 96.

Coxal Pouches of *Diplopoda*, VERHOEFF (49).

The Lateral Cephalic Organs of *Glomeris*, DE ZOGRAF (62).

Nervous System of *Myriapoda*, ROSSI (39). Nervous System and Sense Organs of *Myriopoda*, VOM RATH (38). Eyes of *Myriopoda*, HESSE (24), pp. 353–362.

Structure of the Tracheal Tubes of *Scolopendra*, MERLIN (30).

2. Physiology.

Active principle of the poison of *Iulus*, BÉHAL & PHISALIX (5), PHISALIX (33). Effect of the poison of *Scolopendra*, BAER (4). Secretion of Camphor by a *Polyzoni*um, COOK (18).

- Regeneration of Appendages in *Myriopoda*, BORDAGE (7).
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 Casting the Skin in *Diplopoda*, VERHOEFF (45).

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- Cell-division in *Myriopoda*, MEVES & VON KORFF (31). Mitosis in *Geophilus linearis*, BOUIN & COLLIN (11).
 Spermatogenesis of *Scolopendra*, BLACKMAN (6). Spindle etc. in Seminal Cells of *Lithobius forficatus*, BOUIN (8-10). Spermatogenesis in *Geophilus linearis*, BOUIN & COLLIN (11).
 Development of *Scolopendra*, HEYMONS (25).

4. Variation and Phylogeny.

- Variation in *Fontaria virginensis*, MAUCK (28).
 Phylogeny of *Diplopoda*, VERHOEFF (48), p. 507: of some Families of *Diplopoda*, NĚMEC (32).

5. Habits and Miscellaneous.

- Nest of *Iulus*, ROSSI (42).
 Swarming of *Fontaria virginensis*, MAUCK (28).
 Literature of *Myriopoda*, 1898-1900, GIESBRECHT & MAYER (21-23), 1896 & 1897, LUCAS (27).

III. DISTRIBUTION.

(1) Arctic and Antarctic.

(Vacant.)

(2) Europe and Mediterranean Islands.

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 Russia: n. sp. of *Geophilus*, ATTEMS (2), p. 282.
 Caucasus: n. sp. of *Anuroleptophyllum* n. subg., ATTEMS (2), p. 293.
 Tiflis: n. sp. of *Iulus*, ATTEMS (2), p. 288.
 S. Germany: 2 n. spp. of *Orobainosoma* (pp. 99 & 102), n. subsp. of *Ceratosoma karoli* (p. 98), n. subsp. of *Iulus braueri* (p. 107), n. subsp. of *Heteroparatia alpestre* (94), VERHOEFF (56): Württemberg, Bavaria and German-Bohemia, *Diplopoda*, VERHOEFF (56), p. 85: Stuttgart, n. sp. of *Haplophilus* (p. 411), VERHOEFF (54): Tessin, *Chordeumida* n. sp. of *Trimerophoron*, ROTHENBÜHLER in CARL (16), p. 367.
 Graubünden: *Myriopoda*, ROTHENBÜHLER in CARL (16).
 Scotland: *Myriopoda*, EVANS, Ann. Scott. Nat. Hist. ix, p. 127, x, pp. 120, 184.
 Hampshire: *Myriopoda*, POCOCK (34).
 France, Monaco: n. sp. of *Iulus*, p. 259, Maritime Alps: n. sp. of *Schendyla*, p. 261, n. sp. of *Ceratosoma*, p. 260, BRÖLEMAN (15). Omonville-la-Rogue: *Myriopoda*, GADEAU DE KERVILLE (26), pp. 193 & 194.

Portugal, Coimbra: n. sp. of *Iulus* (p. 94), VERHOEFF (55).

Italy, Lugano: n. subsp. of *Iulus montivagus* (p. 92), n. sp. of *Cylindroiulus* (p. 99), n. sp. of *Leptophyllum* (p. 90), n. sp. of *Iulus* (p. 93), VERHOEFF (55).

Sardinia: n. sp. of *Callipus*, VERHOEFF (52), p. 65.

Austria: Cavernicolous *Myriopoda*, VIRÉ (59): Tirol, n. sp. of *Iulus* (p. 106), n. subsp. of *Orotrechosoma alticolum* (p. 105), n. subsp. of *Trimeropheron* (p. 104), VERHOEFF (56): S. Tirol, *Diplopoda*, n. sp. of *Geophilus* (*Mesogeophilus*), VERHOEFF (51), p. 681: Herzegowina, n. sp. of *Microdesmus* (p. 223), n. sp. of *Iulus* (p. 232), n. sp. of *Brachyiulus* (p. 231), n. sp. of *Typhloiulus* (p. 233), n. sp. of *Neoatractosoma* (p. 226), n. sp. of *Lysioptetalum* (p. 224), n. subsp. of *Polymicrodon lignivorum* (p. 228), VERHOEFF (57), n. sp. of *Geophilus* (p. 419), n. sp. of *Lithobius* (p. 438), VERHOEFF (54), Jablanica, *Diplopoda*, 3 n. spp. of *Apfelbeckia*, VERHOEFF (47), pp. 275-277: Trebinje, n. sp. of *Lithobius* (p. 435), VERHOEFF (54): Herzegowina, S. Bavaria and Hungary, *Myriopoda*, VERHOEFF (57), p. 221: Bosnia, Dalmatia, and Herzegowina, *Chilopoda*, VERHOEFF (54), pp. 458-462: Bosnia, n. sp. of *Microdesmus* (p. 223), n. sp. of *Brachydesmus* (p. 222), VERHOEFF (57): Vallombrosa, n. subsp. of *Cylindroiulus apenninorum* (p. 99), VERHOEFF (55): Narentauser, n. sp. of *Polymicrodon* (p. 227), VERHOEFF (57): Styria, n. sp. of *Lysioptetalum* (p. 257), VERHOEFF (58).

Carpathians, n. sp. of *Lysioptetalum* (p. 256), VERHOEFF (58).

Constantinople: n. sp. of *Brachyiulus* (p. 266), n. sp. of *Apfelbeckiella* (p. 262), n. sp. of *Heterozonium* (p. 253), VERHOEFF (58).

Valona: 2 n. spp. of *Pachyiulus* (pp. 262 & 263), n. sp. of *Lysioptetalum* (p. 259), VERHOEFF (58).

Veluchi: n. sp. of *Brachyiulus* (p. 266), n. sp. of *Macheiroiulus* (p. 260), VERHOEFF (58).

Roumania: *Chilopoda*, 2 n. spp. of *Lithobius* (pp. 173 & 174), n. subsp. of *L. audax* (p. 174), VERHOEFF (46).

Albania: n. sp. of *Brachyiulus* (p. 266), n. sp. of *Microchordeuma* (p. 259), n. subsp. of *Polydesmus mediterraneus* (p. 254), VERHOEFF (58).

Greece: *Chilopoda*, VERHOEFF (54), pp. 442-457, *Diplopoda*, VERHOEFF (53): Middle Greece, 2 n. spp. of *Lithobius* (pp. 438 & 440), VERHOEFF (54), n. sp. of *Pachyiulus* (p. 88), n. sp. of *Iulus* (p. 95), n. subsp. of *Brachyiulus unilineatus* (p. 97), VERHOEFF (55): Peloponnesus, n. sp. of *Lithobius* (p. 440), VERHOEFF (54), n. sp. of *Acanthopetalum* (p. 57), n. subsp. of *Schizopetalum scabratum* (p. 63), VERHOEFF (52): Attica, n. subsp. of *Bothriogaster affinis* (p. 410), n. sp. of *Lithobius* (p. 439), n. sp. of *Pachymerium* (p. 418), VERHOEFF (54): Nauplia, n. sp. of *Cryptops* (p. 430), VERHOEFF (54): Patras, n. sp. of *Strongylosoma*, VERHOEFF (53), p. 188: Thessaly, n. sp. of *Pachyiulus* (p. 264), VERHOEFF (58): Aegina, n. sp. of *Geophilus* (p. 421), VERHOEFF (54): Corfu, n. sp. of *Cryptops* (p. 431), n. subsp. of *Lithobius anodus* (p. 440), n. sp. of *Scotophilus* (p. 423), VERHOEFF (54), 2 n. spp. of *Brachyiulus* (pp. 191-193), n. subsp. of *Gervaisia costata* (p. 185), VERHOEFF (53), n. sp. of *Acanthopetalum* (p. 55), n. sp. of *Callipodella* (p. 61), n. subsp. of *Dorypetalum degenerans* (p. 64), n. sp. of *Lysioptetalum* (p. 58), VERHOEFF (52): Crete, n. sp. of *Pachyiulus* (p. 265), n. sp. of *Lysioptetalum* (p. 258), n. sp. of *Strongylosoma* (p. 254), VERHOEFF (58): Cyclas, n. sp. of *Lysioptetalum* (p. 259), VERHOEFF (58): Cyprus, n. sp. of *Lithobius* (p. 441), VERHOEFF (54): Karpethos Is., n. sp. of *Brachyiulus* (p. 268), VERHOEFF (58): Koras, n. sp. of *Pachyiulus* (p. 263), n. sp. of *Brachyiulus* (p. 267), n. subsp. of *Lysioptetalum argolicum* (p. 257), VERHOEFF (58): Naxos, n. sp. of *Brachyiulus* (p. 98), VERHOEFF (55), n. sp. of *Geophilus* (p. 419), VERHOEFF (54): Nikaria, n. sp. of *Pachyiulus* (p. 265), n. sp. of *Lysioptetalum* (p. 256), VERHOEFF (58): Samos, n. sp. of *Strongylosoma* (p. 255), VERHOEFF (58).

(3) *Asia (Palæarctic).*

For *Myriopoda* generally of Palæarctic Asia, see VERHOEFF (52-58).
 Hamann bou Hadjar: n. sp. of *Pachyiulus* (p. 84), VERHOEFF (55).
 Palestine: n. sp. of *Catamicrophyllum* (p. 82), VERHOEFF (55): *Apfelbeckia byzantium phæniceum*, n. subsp., VERHOEFF (52), p. 59: Jerusalem, n. sp. of *Bothriogaster* (p. 405), n. subsp. of *Bothriogaster affinis* (p. 410), VERHOEFF (54): Jaffa, n. sp. of *Catamicrophyllum* (p. 83), VERHOEFF (55), n. subsp. of *Bothriogaster affinis* (p. 410), VERHOEFF (54).
 Mt. Sinai: n. sp. of *Pachyiulus* (p. 87), VERHOEFF (55).
 China: n. sp. of *Lithobius* (p. 280), n. sp. of *Geophilus* (p. 283), n. sp. of *Mecistocephalus* (p. 287), n. sp. of *Skleroprotopus* n. g. (p. 306), ATTEMS (2).

(4) *India and Further India.*

S. India: n. sp. of *Lithobius*, Pocock (37), p. 449.

(5) *Malay Peninsula and Archipelago.*

Malay Peninsula: *Myriopoda*, FLOWER (19).

(6) *Africa and Madagascar.*

Tripoli: n. subsp. of *Lithobius microps* (p. 441), VERHOEFF (54), n. sp. of *Brachiulus* (p. 192), n. subsp. of *B. coreyæus* (p. 194), VERHOEFF (52).
 Tunis: n. sp. of *Otostigma* (p. 433), VERHOEFF (54).
 Region of the White Mts.: sp. of *Archispirostreptus*, *Scolopendra moritans*, FLOWER (20).
 Erythræa: *Myriopoda* incl. n. sp. of *Oxydesmus* (p. 27), n. sp. of *Strongylosoma* (p. 29), and n. sp. of *Spirostreptus* (p. 31), BRÖLEMANN (14).
 Kwale Is.: n. sp. of *Odontopyge*, VERHOEFF (50).
 Mozambique: *Myriopoda* (in a collection of *Arthropoda* offered to the Paris Museum), BOUVIER & LESNE (12).
 Durban: n. g. of *Chilopoda*, Pocock (37), p. 450.

(7) *North America.*

(Vacant.)

(8) *South and Central America and West Indies.*

Mexico: *Diplopoda*, *Duoporus barretti*, n. g., n. sp., COOK (17).
 Coxipo: n. g. of *Stiodesmidae* (in Ants' nest), SILVESTRI (44), p. 19.
 Paraguay: n. g. of *Stiodesmidae* (in Ants' nest), SILVESTRI (44), p. 15.
 Argentina: n. g. of *Stiodesmidae* (in Ants' nest), SILVESTRI (44), p. 17.

(9) *Australasia.*

Australia: *Chilopoda* incl. n. sp. of *Henicops*, 2 n. spp. of *Cormocephalus*, Pocock (36), p. 451.
 New Zealand: *Chilopoda*, n. sp. of *Necrophleophagus*, Pocock (36) p. 462.

(10) *Atlantic Islands.*

Teneriffe : n. sp. of *Pachyiulus* (p. 86), VERHOEFF (55).

(11) *Indian Ocean Islands.*

Seychelles : *Myriopoda* including the following n. spp. in *Chilopoda*, n. var. of *Mecistocephalus glabridorsalis* (p. 138), n. sp. of *Otiostigma* (p. 136), n. sp. of *Scolopendra* (p. 136), n. sp. of *Thalthybius* n. g. (p. 139), in *Diplopoda*, n. sp. of *Agastrophus* n. g. (p. 151), n. sp. of *Hyperothrix* n. g. (p. 143), n. sp. of *Orthomorpha* (p. 142), n. sp. of *Orsillochus* (p. 167), 2 n. spp. of *Siphonophora* (pp. 163 & 164), n. sp. of *Spirobolus* (p. 155), n. sp. of *Trigoniulus* (p. 159), ATTEMS (3).

(12) *Pacific Ocean Islands.*

(Vacant.)

IV. SYSTEMATIC.*

CHILOPODA.

Classification of *Lithobiomorpha*, Pocock (36), p. 448; of the *Geophilida*, VERHOEFF (54), pp. 414-416.

Nomenclature of *Geophilus*, Pocock (35).

Bothriogaster, discussion of the g. and key to spp., p. 405, *porigera*, Jerusalem, VERHOEFF, Acta Ac. German. lxxvii, p. 409, n. sp.

B. affinis phænicea, Jaffa, pl. xvii, fig. 4, *affinis judaica*, Jerusalem, pl. xvii, fig. 2, *affinis græca*, Attica, pl. xvii, fig. 6, VERHOEFF, t. c., p. 410, n. subsp.

Cormocephalus aurantiipes, p. 455, *westwoodii*, p. 457, notes, Pocock, Ann. Nat. Hist. (7) viii.

C. turneri, Perth, Australia, p. 456, *esulcatus*, Victoria, p. 458, Pocock, t. c., n. spp.

Cryptops medius, Nauplia, p. 430, *corcyraeus*, Corfu, p. 431, VERHOEFF, Acta Ac. German. lxxvii, n. spp.

Ethmostigmus rubripes, colour variation, Pocock, Ann. Nat. Hist. (7) viii, p. 459.

Geophilus, discussion of the nomenclatural history of the genus, Pocock, Ann. Nat. Hist. (7) viii, pp. 329 & 330. [The original genus is now divided as follows: *Necrophlaeophagus* Newport (= *Arthronomulus* Newp.), type *longicornis* Leach; *Scirpæus* Meinert, type *carpophagus* Leach (= *sodalis* Mein.); *Linotania* Koch, type *acuminata* Leach (= *rosulans* Koch); *Geophilus* Leach (?= *Stigmatogaster* Latz.), type *subterraneus* Leach.]

G. linearis, spermatogenetic mitosis, BOUIN & COLLIN, Anat. Anz. xx, p. 97; *G. flavidus escherichii*, descr., ATTEMS in HORVÁTH, Zool. Ergebn. Zichy ii, p. 285, pl. ix, figg. 11 & 12.

* Where the character of a reference is not indicated the words "described" or "descriptive notes" are to be understood.

- G. ganonotus*, Russia, ♀ descr., p. 282, pl. ix, figg. 1-4, *infossulatus*, China, ♂ descr. p. 383, pl. ix, figg. 5-7, ATTEMS, t. c.; *G. herzegowinensis*, S. Herzegowina, p. 419, *naxius*, Naxos, p. 420, *poseidonis*, Aegina, p. 421, VERHOEFF, Acta Ac. German. lxxvii : n. spp.
- Haasiella*, n. gen. with *Henicops insularis* Haase as type, Pocock, Ann. Nat. Hist. (7) viii, pp. 448 & 449.
- Haplophilus sardous*, Stuttgart, VERHOEFF, Acta Ac. German. lxxvii, p. 411, pl. xvii, figg. 7 & 8, n. sp.
- Henicops*, definition of genus, p. 450, *maculatus*, ♀ descr., p. 453, Pocock, Ann. Nat. Hist. (7) viii.
- H. dentatus*, W. Australia, Pocock, t. c., p. 454, n. sp.
- Lamyctes*, definition of genus, Pocock, t. c., p. 449.
- Linotania*, see *Geophilus* sup. p. 10.
- Lithobius decessus*, China, ATTEMS in HORVÁTH, Zool. Ergebn. Zichy ii, p. 280; *L. sculpturatus*, S. India, Pocock, Ann. Nat. Hist. (7) viii, p. 449; *L. dollfusi*, p. 173, *walachicus*, p. 174, Roumania, VERHOEFF, Bull. Soc. Bucarest x; *L. acherontis*, Trebinje, p. 435, *zeus*, M. Greece, p. 438, *herzegowinensis*, Herzegowina, p. 438, *atticus*, Attica, p. 439, *picearius*, Peloponnesus, p. 440, *diana*, M. Greece, p. 440, *vosseleri*, Cyprus, p. 441, VERHOEFF, Acta Ac. German. lxxvii : n. spp.
- L. audax jaqueti*, Roumania, VERHOEFF, Bull. Soc. Bucarest x, p. 174; *L. anodus sulcatulus*, Corfu, p. 440, *microps biops*, Tripoli, p. 441, VERHOEFF, Acta Ac. German. lxxvii : n. subspp.
- L. captivus*, p. 278, sp. i, p. 279, *ceruginosus*, var. *mongolicus* nov., Mongolia, p. 280, descriptive notes, ATTEMS in HORVÁTH, Zool. Ergebn. Zichy ii.
- Mecistocephalus indecorus*, China, Peking, ♂ descr., ATTEMS, t. c. p. 287, pl. ix, figg. 8-10, n. sp.
- M. punctifrons* var. *glabridorsalis* nov. Mahé, Seychelles, ATTEMS, Zool. Jahrb. Syst. xiii, p. 138.
- Mesogeophilus* n. subg. for *Geophilus forbaldensis*, S. Tirol, VERHOEFF, Zool. Anz. xxiv, p. 681, n. sp.
- Necrophleophagida* nom. nov. for *Geophilida*, retained for *Himantariida* Cook, Pocock, Ann. Nat. Hist. (7) viii, pp. 329 & 330.
- Necrophleophagus concolor*, distinctive characters, *opinatus*, descr., Pocock, t. c. p. 461. [See also *Geophilus* sup., p. 10.]
- N. spenceri*, The Bluff, South Is., N. Z., Pocock, t. c. p. 462, n. sp.
- Otostigma seychellarum*, Mahé, Seychelles, ATTEMS, Zool. Jahrb. Syst. xiii, p. 136; *O. tunetanum*, Tunis, VERHOEFF, Acta Ac. German. lxxvii, p. 433, pl. xvii, fig. 16 : n. spp.
- O. politum*, notes on specimens from China, ATTEMS, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 281; *O. scaber*, notes, FLOWER, J. Straits Asiat. Soc., No. 36, p. 23; *O. tuberculatus*, notes, Pocock, Ann. Nat. Hist. (7) viii, p. 458.
- Pachymerium atticum*, Attica, VERHOEFF, Acta Ac. German. lxxvii, p. 418, n. sp.
- Paralamyctes* n. g. defined for *spenceri*, Durban, Pocock, Ann. Nat. Hist. (7) viii, p. 450, n. sp.
- Pleurogeophilus* n. subg. of *Geophilus* (q. v.), VERHOEFF, Acta Ac. German. lxxvii, p. 417.
- Rhombcephalus latus*, notes on colour, Pocock, Ann. Nat. Hist. (7) viii, p. 455.
- Scnipæus*. [See *Geophilus* sup., p. 10.]
- Scutigera* sp. descr., ATTEMS, Zool. Jahrb. Syst. xiii, p. 135.
- Scolopendra macheropus*, Mahé, Seychelles, ATTEMS, Zool. Jahrb. Syst. xiii, p. 136, n. sp.
- S. de haanii*, notes on habits, etc., FLOWER, J. Straits Asiat. Soc., No. 36, p. 21.
- Scotophilus græcus*, Corfu, VERHOEFF, Acta Ac. German. lxxvii, p. 423, n. sp.

- Scutigera longicopnis*, notes and measurements, FLOWER, J. Straits Asiat. Soc., No. 36, p. 19; *S. maculata*, notes on Australian forms and on allied spp., Pocock, Ann. Nat. Hist. (7) viii, p. 451.
Thalhybius n. g. of *Geophilidae* for *melanostigma*, Mahé, Seychelles, ATTEMS, Zool. Jahrb. Syst. xiii, p. 139, pl. xv, figg. 10-12, n. sp.

PAUROPODA.

(Vacant.)

DIPLOPODA.

Classification of *Pachyiulus*, VERHOEFF (55), p. 85.

Classification of Palæarctic *Diplopoda proterandria* :—

Diplopoda proterandria.

- Sub-Ord. 1. *Proterospermophora* (*Polydesmidae* and *Lysiopetalidae*).
- Sub-Ord. 2. *AscospERMophora* (*Chordeumidae*).
- Sub-Ord. 3. *Opisthospermophora* (*Iulidae* incl. *Spirobolidae* and *Spirostreptidae*), VERHOEFF (52), pp. 52-54.

Classification of the *Lysiopetalidae* :—

Sub-Fam. I. *Callipodinae* nov.

Genus 1. *Callipus* n. g.

Subgg. *Rabduchopetalum* nov. *Callipus* nov., *Silvestria* Verh.

Sub-Fam. II. *Lysiopetalinae* nov.

Tribe A. *Dorypetalini* nov.

Genus 2. *Dorypetalum* n. g.

Tribe B. *Apfelbeckiini* nov.

Genus 3. *Himatiopetalum* n. g.

„ 4. *Apfelbeckia* Verh.

Tribe C. *Lysiopetalini*, nov.

Genus 5. *Lysiopetalum* Brandt emend.

Subgg. *Brölemannia* Verh., *Lysiopetalum* nov., *Callipodella* Verh., *Acanthopetalum* nov., *Schizopetalum* nov., *Dischizopetalum* nov.,

VERHOEFF (52), pp. 49-52.

Nomenclature of the *Blaniulidae*, Pocock (35).

Acanthodesmus lineatus, smell, FLOWER, J. Straits Asiat. Soc., No. 36, p. 14.

Acanthopetalum, n. subg. of *Lysiopetalum* def., p. 52, *albidicollis*, Corfu, p. 55, pl. ix, figg. 38 & 39, *argolicum*, E. Poleponnesus, p. 57, pl. ix, figg. 40 & 41, VERHOEFF, Zool. Jahrb. Syst. xiii, n. spp.

Agastrophus n. g. of *Cambalidae* for *anguinus* Sihonett, Seychelles, ATTEMS, Zool. Jahrb. Syst. xiii, p. 151, pl. xvi, figg. 25-30, n. sp.

Anuroleptophyllum n. subg. of *Leptophyllum* for *caucasicum*, Caucasus, ATTEMS, Zool. Ergebn. Zichy ii, pp. 292 & 293, pls. ix, figg. 13-15, x, figg. 2-9, n. sp.

Apfelbeckia enderleinii, p. 275, *albosignata*, p. 276, *silvivaga*, p. 277, *Jablanica*, VERHOEFF, Zool. Anz. xxiv, n. spp.

A. byzantium phæniceum, Caifa, Palestine, VERHOEFF, Zool. Jahrb. Syst. xiii, p. 59, pl. viii, figg. 28 & 29, n. subsp.

A. lendenfeldii, descr., VERHOEFF, Zool. Anz. xxiv, p. 275.

Apfelbeckiella n. g. of *Iulidae* for *byzantinum*, Constantinople, VERHOEFF, Arch. Naturg. lxvii (1), p. 262, pl. xiii, figg. 12 & 13, n. sp.

Blaniulidae, nomenclatural history [genera of the group = *Blaniulus* Gervais (= *Typhloblaniulus* Verh.), type *guttulatus* Bosc.; *Tricho-*

- blaniulus* Verh., type *Blaniulus hirsutus* Bröl; *Nopoiulus* Menge (= *Blaniulus* Verh. nec. Gervais), type *Iulus kochii* Gervais (= *pulchellus* Koch nec Leach, *punctulatus* Menge, and *venustus* Meinert); *Proteroiulus* Silvestri, type *Blaniulus fuscus* Stein]: Pocock, Ann. Nat. Hist. (7) viii, pp. 330 & 331.
- Brachyiulus dahli*, Herzegovina, VERHOEFF, Arch. Naturg. lxvii (1), p. 231, pl. x, fig. 7; *B. naxius*, Naxos, VERHOEFF, t. c. p. 98, pl. v, fig. 21; *B. rubidicollis*, Veluchi, p. 266, *byzantinus*, Constantinople, p. 266, pl. xii, fig. 7, *karachi*, Albania, p. 267, pl. xiii, figg. 20 & 21, *montivagus*, Koras Mt., p. 267, pl. xii, fig. 9, *müggenburgi*, Is. Karpathos, p. 268, pl. xiv, fig. 24-26, VERHOEFF, t. c.; *B. argolicus*, Corfu, p. 191, pl. xviii, figg. 6, 7 & 10, *euphorbiarum*, Tripoli, p. 192, pl. xviii, figg. 8 & 9, *corcyraeus*, Corfu, p. 193, pl. xviii, figg. 11 & 12, *corcyraeus arcadicus*, Tripoli, p. 194, pl. xviii, figg. 13 & 14, VERHOEFF, Zool. Jahrb. Syst. xiii; *B. unilineatus hercules*, M. Greece, VERHOEFF, Arch. Naturg. lxvii (1), p. 97, pl. v, figg. 18 & 19: n. spp. & n. subsp.
- Brachydesmus duboiensis*, Duboi, N. Bosnia, VERHOEFF, t. c., p. 222, pl. x, fig. 5, n. sp.
- B. glabrimarginalis*, notes, VERHOEFF, t. c., p. 223, pl. x, fig. 8.
- Callipodella dorsovittatum*, Corfu, VERHOEFF, Zool. Jahrb. Syst. xiii, p. 61, pl. vii, figg. 8-10, n. sp.
- Callipus* n. g. of *Lysiopetalidae* def., VERHOEFF, t. c., p. 49. [See also *Rabduchopetalum*, p. 15.]
- Callipus* n. subg. of *Callipus* def., VERHOEFF, t. c., p. 50.
- Catamicrophyllum* n. g. of *Iulidae*, caifunum, Palestine, p. 82, pl. v, fig. 2, *hamuligerum*, Jaffa, p. 83, pl. iv, fig. 1, VERHOEFF, Arch. Naturg. lxvii (1), n. spp.
- Ceratosoma devillei*, Maritime Alps, descr. and figg., BRÖLEMAN, Feuille Natural. xxxi, p. 260, n. sp.
- C. kuroli germanicum*, S. Germany, VERHOEFF, Jahresh. Ver. Wurttemb. lxvii, p. 98, figg. 5-9, n. subsp.
- Cylindrodesmus hirsutus*, notes, VERHOEFF, Zool. Jahrb. Syst. xiii, p. 141, pl. xv, figg. 7-9.
- Cylindroiulus generosensis*, Mt. Generoso, Lugano, p. 99, pl. v, figg. 22, *partenkirchianus*, Up. Bavaria, p. 234, pl. xi, figg. 23-25, *abaligetanus*, near Abaliget, p. 235; VERHOEFF, Arch. Naturg. lxvii (1) n. spp.
- C. apenninorum montirepens*, Vallombrosa, VERHOEFF, t. c., p. 99, pl. v, fig. 23, n. subsp.
- Dischizopetalum* n. subg. of *Lysiopetalum*, def., VERHOEFF, Zool. Jahrb. Syst. xiii, p. 52.
- Dolistenus savii*, notes, VERHOEFF, Zool. Jahrb. Syst. xiii, p. 181, pl. xviii, fig. 1.
- Dorypetalum* n. g. of *Lysiopetalidae* def., p. 50, *degenerans trispiculigerum*, Corfu, VERHOEFF, t. c., p. 64, pl. viii, fig. 27, n. subsp.
- Duoporus* n. g. for *barretti*, ♂, Mexico, COOK, P. ent. Soc. Washington iv, p. 402, n. sp.
- Gervaisia* [*costata multiclavigera* figured, pl. xviii, fig. 3 for comparison with] *costata corcyraea*, Corfu, VERHOEFF, Zool. Jahrb. Syst. xiii, p. 185, pl. xviii, fig. 4, n. subsp.
- Glyphiulus granulatus*, Mahé, Seychelles, descr., ATTEMS, Zool. Jahrb. Syst. xiii, p. 149, pl. xvi, figg. 20-24.
- Fontaria virginienensis*, swarming and variation, MAUCK, Amer. Natural. xxxv, p. 477.
- Heteroparatia alpestre walhallae*, S. Germany, VERHOEFF, Jahresh. Ver. Wurttemb. lxvii, p. 94, fig. 1, n. subsp.
- H. bosniense*, p. 95, figg. 2 & 4, *simile*, p. 95, fig. 3, VERHOEFF, t. c.
- Heterozonium hirsutum*, Constantinople, VERHOEFF, Arch. Naturg. lxvii (1) p. 253, pl. xiii, figg. 14-17, n. sp.

- Himatiopetalum* n. g. of *Lysiopetalidæ* def., p. 50, *ictericum*, emend., VERHOEFF, Zool. Jahrb. Syst. xiii, p. 54, pl. vii, figg. 1-7.
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- I. sp.* ? descr., ATTEMS in HORVÁTH's Zool. Ergebn. Zichy ii, p. 291.
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- Macheiroiulus* n. g. of *Iulidæ*, for *compressicauda*, near Veluchi, VERHOEFF, t. c., p. 260, pl. xii, fig. 8, n. sp.
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- Microdesmus* n. g. of *Strongylosomatidæ* for *albus*, Herzegowina, p. 223, pl. xi, figg. 15 & 16, *bosniensis*, p. 224, VERHOEFF, t. c., n. spp.
- Neotractosoma herzegowinense*, S. Herzegowina, VERHOEFF, t. c., p. 226, pl. xi, figg. 13 & 14, n. sp.
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- Pæctophyllinæ*, n. subfam. of *Iulidæ*, VERHOEFF, Arch. Naturg. lxvii (i), p. 80.
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- Polymicrodon narentanum*, Narentaufer, VERHOEFF, t. c., p. 227, pl. x, fig. 1, n. sp.
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- Siphonophora braueri*, Mahé, Seychelles, p. 163, pl. xvii, figg. 37-42, *tropiphora*, Mahé, Seychelles, p. 164, pl. xvii, figg. 43-50, ATTEMS, Zool. Jahrb. Syst. xiii, n. spp.
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Anatomy of *Eoperipatus butleri*, EVANS (9) ; of *Eoperipatus weldoni* and *horsti*, EVANS (8).

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Siamese Malay States : *Eoperipatus weldoni* and *horsti*, EVANS (8).

Straits Settlements : *Eoperipatus butleri*, EVANS (9).

Jamaica : COCKERELL (6).

Bolivia : 2 n. spp. of *Peripatus*, BOUVIER (1).

IV. SYSTEMATIC.

Classification of *Protracheata* :—

Family *Peripatidae*.

Subfam. 1. *Peripatinae*.

Genus 1. *Eoperipatus*, nov.

„ 2. *Peripatus* (Pocock).

„ 3. *Mesoperipatus*, nov.

Subfam. 2. *Peripatoideae*.

Genus 4. *Peripatoides* (Pocock).

„ 5. *Opisthopatus* (Purcell).

Subfam. 3. *Peripatopsinae*.

Genus 6. *Peripatopsis* (Pocock).

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XIII. INSECTA.

By D. SHARP.

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INTRODUCTION.

THE year 1901 again showed an increase in the amount of entomological literature. The number of titles in the Record being 1525 as contrasted with 1431 in the year 1900.

Several important systematic works have appeared; among them are the eighth Vol. of the Romanoff series on Lepidoptera, it concludes the work of the late M. RAGONOT (1104) on the *Phycitinae* and *Galleriinae* and has been completed and prepared for press by Sir GEORGE HAMPSON. The 3rd Vol. of the British Museum Catalogue of moths has also appeared; HAMPSON (592). Mr THEOBALD's work on mosquitoes (1358) almost inclines the entomologist to wish that some of the other neglected groups of Insects may be suspected of malarial practices, as then we might hope that something would be done by Society to repair the great indifference with which this department of Nature is treated.

KOLBE (774) has favoured us with suggestions for a new classification of Coleoptera, that differs very widely from that propounded last year by Prof. Lameere. PÉRINGLEY has published (1014) the Lamellicorn division of the projected descriptive catalogue of the Coleoptera of S. Africa. To DARBOUX & HOUARD (324) we are indebted for a useful catalogue of galla.

In morphology KADIĆ (699) gives us a study of the labium in a certain number of forms of *Coleoptera*, and LEON (832) has treated of the same part in *Hemiptera*. The remarkable structures in connection with the respiration of Dipterous larvæ have received considerable attention. ENDERLEIN (412, 413) adds to his remarks on them some suggestions as to the physiology of respiration; his papers deal with the spiracles of Oestridæ in which group the specialisation of these structures is carried to its extreme. PANTEL (1002) has made some novel and interesting suggestions on the same subject, and it is also treated of by MÜGGENBURG (952).

GUENTHER's memoir (589) treats of the finer anatomy of the wings of *Lepidoptera*. He ranks them as sense-organs much more highly than others have done; indeed he evidently inclines to the opinion that every scale may be innervated, in addition to the more specialised sense-organs he describes. DE MEIJERE treats of the terminal parts of the feet (906). LÉCAILLON besides his important paper (823) on the ovary in *Collembola*, has given us a series of short papers on the ovaries. JANET's treatise (686) on the sting of *Myrmica* is a concise and valuable account of a difficult piece of anatomical work. The same author's morphological paper (687) on the head, is a most brilliant contribution, even though the hypothesis it is intended to support may prove to be untenable. HESSE's papers (619, 620) on ocelli will be found very useful. MEINERT's account (909) of the larvæ of Dytiscidæ considerably extends our knowledge. TANNREUTHER (1352) has been able to give particulars of the occurrence of supernumerary wings in the prepupa of *Pieris*. TORNIER (1373) has recorded his experiments as to the regeneration of wings and legs in *Coleoptera*. BÖRNER's work on Centr. European *Collembola* is accompanied by a new classification of the Order (137).

DICKEL's papers (336-339) on the development of the bee in the egg and the determination of sex and caste deserve close attention. REH's discussion of the metamorphosis of *Coccidæ* (1111) is accompanied by considerations as to complete and incomplete metamorphosis, and attempts to define the terms, larva, pupa, nymph. ZANDER (1504) deals with the development and morphology of the male structures of *Trichoptera*. ANGLAS (25) makes an important contribution to the great subject of metamorphosis, and

BERLESE gives a sketch (91) of the comparative physiology of metamorphosis in several orders.

PERGANDE's account (1012) of the cycles of generations of two migratory species of *Aphidæ* is very interesting and important.

FOREL (474) continues his critical account of recent publications on Insect psychology.

SILVESTRI's papers (1288, 1289) contain some brief but highly interesting particulars as to the relations of termitophilous Insects with their hosts.

KIEFFER has completed his important memoir (728) on the biology of *Cecidomyiidae*, and has also given us a synopsis of the galls of Europe (729) arranged according to plants. DAHL's study (315) of the ethology of ants in the Bismarck Archipelago well repays perusal; FERTON (454) gives us a series of observations on the instinct and habits of Aculeate *Hymenoptera*, and ADÈLE FIELE an interesting sketch of the life of *Stenamma* (456, 457) in a captive nest.

WHEELER's series of papers on the natural history of ants is sure to receive attention. BABB (53) has shewn that previous writers have been in error as to the stridulation of *Passalidæ*.

STAUDINGER & REBEL's long expected catalogue (1325) of palaearctic *Lepidoptera* has been thankfully received. British entomologists have had a welcome volume from the Ray Society (962) in Mr NEWSTEAD's *Coccidæ*. VERRALL's volume (1413) commences the work on British *Diptera* that has for so long been a desideratum. KRAEPELIN's list of Insects introduced at Hamburg (786) amounting to nearly 300 species is of considerable importance. HUTTON has completed his enumeration (661) of the New Zealand *Diptera*, but it is certain that only a fragment of this division of the New Zealand fauna is at present known. HANDLIRSCH & BISCHOF have discussed the modes in vogue of dealing with local faunas (114, 635). FROGGATT (505) gives some notes as to the rapid destruction of the Australian Fauna. The series of papers on Galapagos Insects of the Hopkins Stanford expedition has brought to light sufficient novelties to make it clear that a thorough exploration of these islands should be undertaken as soon as possible [see BANKS (61), CURRIE (310, 311), COQUILLETT (290), HEIDEMANN (608), McNEILL (901)].

Dr THÉBAULT (1356) assures us that the larvæ of *Piophilæ casei* can traverse the human alimentary canal and give rise to very serious symptoms without being themselves killed.

TOWNSEND has called attention to a remarkable case of resemblance between an associated *Dipteron* and fossorial *Hymenopteron* (1375).

SCUDDER (1254) gives us an important paper on fossil *Coleoptera*.

MAETERLINCK's work (870) on the Instinct of bees is really philosophical, well written and interesting, and includes a few original observations. It is probably the only entomological book that has ever sold an edition of 10,000 copies in a few weeks. It has been translated into English, SUTRO (1344).

As popular works we may mention HOWARD's two books (646, 647), CONNOLD's galls (289), and the translation of FABRE (426).

Through the kindness of Dr Frederico Philippi I am able to include this year several papers on Chilian Insects that I have tried in vain to procure previously.

The work called "Butterflies in amber" by Francis Wyman has not been overlooked but is omitted because the only entomological matter in it, is the verse that serves as motto,

"Tis visible in all the Poet sings
What of the beautiful his soul hath won :
As butterflies show on their tinted wings
The colours of the flowers they feed upon."

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4. —. Beiträge zur Kenntniss der mährischen Höhlenfauna. T. c. pp. 6-14, pl. i. [*Collembola*.]
5. —. Zwei neue *Collembolen*formen aus den Höhlen des mährischen Karstes. *Zool. Anz.* xxiv, pp. 32, 33.
6. —. Über einige theils neue *Collembolen* aus den Höhlen Frankreichs und des südlichen Karstes. T. c. pp. 82-90.
7. —. Über *Uzelia setifera*, eine neue *Collembolen*-Gattung aus den Höhlen des mährischen Karstes, nebst einer Übersicht der *Amphiphorus*-Arten. T. c. pp. 209-216.
8. —. Weitere Nachricht über europäische Höhlen*collembolen* und über die Gattung *Aphorura* A. D. MacG. T. c. pp. 375-381, 385-389. [*Collembola*.]
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II. Die parasiten des Kakao.

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II. BIOLOGY.

SUBJECT-INDEX.

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N.B. The arrangement in the subsections *a-g* of Anatomy and Physiology is of little importance, as it will be noticed that each subsection is not complete in itself.

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Morphology of terminal segments of *Myrmica*, sting, poison-gland, JANET (686).

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b. General (comprehensive) and External. (See also the other subsections for special systems or organs.)

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Lifu : *Lepidoptera*, HAMPSON (592).

N. Zealand : *Insecta*, HUDSON (657); *Hymenoptera*, CAMERON (207), FOREL (478), QUAIL (1094); *Lepidoptera*, MEYRICK (921), QUAIL (1095), PHILPOT (1036); also id. Tr. N. Zealand Inst. xxiii, p. 166; LEWIS, Mount Ida, t. c. pp. 186, 187; HOWES, t. c. pp. 188-190 : *Diptera*, HUTTON (661), THEOBALD (1358); *Hemiptera Het.*, KIRKALDY (754); *Orthoptera*, ALFKEEN (14).

Stephens Is. and Chatham Ids. : *Coleoptera*, SCHWARZ (1247).

Kerguelen Is. : *Coleoptera*, ENDERLEIN (417).

St Paul Is. : *Aphaniptera*, ENDERLEIN (415).

3. PALÆARCTIC REGION.

(a.) Collective: i.e. Papers referring to the *whole region* or *several* of the subdivisions (c—h) thereof.

Coleoptera. BERNHAUER (93, 97), CHAMPENOIS (226), CLOUËT (252), CSIKI (305), DANIEL (321), DESBROCHERS (329), GANGLBAUER (530), JAKOWLEFF (676), LESNE (834), LUZE (862, 865), PETRI (1026), PIC (1047, 1049, 1053), REITTER (1121, 1123-1126, 1128-1130, 1133, 1137, 1141, 1144, 1148, 1153), SCHILSKY (1213), SCHULTZE (1238), SEMENOW (1269), SEMENOW, Rev. Russe Ent. i, pp. 36-38; STIERLIN (1333), TSCHITSCHÉRINE (1387, 1389).

Hymenoptera. ANDRÉ (19), BERTHOUMIEU (100), HANDLIRSCH (600), KIEFFER (731, 734), KOHL (767, 768, 770), MOCSÁRY & SZÉPLIGETI (924), PÉREZ (1011), SZÉPLIGETI (1349), TOURNIER (1374).

Lepidoptera. Catalogue, STAUDINGER & REBEL (1325).—PÁVEL (1005), RAGONOT (1104).

Diptera. KERTÉSZ (719), PLESKE (1070, 1072), THEOBALD (1358).

Hemiptera. HORVÁTH (641), JAKOWLEFF (677), REUTER (1157).—*Homoptera* common to W. Europe and N. America, KIRKALDY (753).—*Coccidae*, NEWSTEAD (963), REUTER (1158, 1160).—Additions et rectifications au Catalogue des *Hémiptères* de la faune paléarctique par le docteur A. Puton, BERGROTH, pp. 254, 255, Rev. Ent. franc. xx.

Neuroptera. KLAČÁLEK (759), TSCHERWINSKY, *Termitidae* (1383).

Orthoptera. BOLIVAR (129).

Collembola. Distribution and dispersal, FOLSOM (470).

(b.) *Europe, Collectively.*

Coleoptera. AFFELBECK (31), BEDEL, *Curculionidæ*, Bull. Soc. ent. France 1901, p. 174; BERNHAUER (95), PENECKE (1006), REITTER (1136, 1151, 1152), SCHULTZE (1235, 1236).—Catalogue of *Col.* Gallo-rhénane, WARNIER (1435).

Hymenoptera. FRIESE (490), KIEFFER (730, 732), KONOW (782).

Lepidoptera. FUCHS (518).

Diptera. BECKER (79), HENDEL (614), KIEFFER [locality not stated] (735), PANDELLÉ (1001), VERRALL (1415).

Aphaniptera. WAGNER (1425).

Perlidæ. Klapálek (761).

Collembola. ABSOLON (6, 8), BÖRNER (140), VIRÉ (1423).

(c.) *British Islands.*

THE FAUNA AS A WHOLE.

Coleoptera. Distribution of British *Col.*, W. E. SHARP (1282).—*Stenolophus plagiatus* n. sp., GORHAM (569).—*Lathridius bergrothi*, novelty, THORNLEY, p. 18, Ent. Mag. xxxvii.

Phthora crenata, introduced, NEWBURY, p. 219, Ent. Rec. xiii.—Colorado beetle, THEOBALD (1361).—*Larinus scolymi* imported, CHAMPION, p. 18, Ent. Mag. xxxvii.

The British *Bruchus*, CHAMPION (228).—*Limnius*, DONISTHORPE, p. 337, pl. ix, Ent. Rec. xiii.—*Diazenes dendrobii* at Watford, STAWEL-STOYEL, Tr. Hertfordsh. Soc. xi, p. 46.

Hymenoptera. Novelty, MORICE (936) and novelties, MORICE, p. 247, Ent. Mag. xxxvii.—Novelties, MORLEY, p. 249, Ent. Mag. xxxvii.—*Caliorys mandibularis*, novelty, GARDNER, p. 166, Ent. Mag. xxxvii.—Revision of *Torymina* n. sp., CAMERON (204).

Pezomachus, MORLEY, pp. 295–301, Tr. Leicester Soc. v.

Lepidoptera. General work, Vol. vii, completed, *Geometridæ*, BARRETT (72).

Popular work, KIRBY (746).

Colias edusa and *hyale* in 1900, FROHAWK (508).—*Colias edusa*, *hyale*, numerous records, Ent. Mag., Entomologist etc. 1901.—*Vanessa antiopa*, numerous records in Ent. Mag., Entomologist etc. 1901.—*Vanessa io* in Ireland in 1901, CUTHBERT, p. 203, Irish Natural. x.—*Sphinx convolvuli* numerous records, Entomologist xxxiv, pp. 313–315 etc.

Diptera. British flies, Vol. viii, *Platyperidæ*, *Pipunculidæ*, *Syrphidæ*, novelties, n. spp., VERRALL (1413).—Catalogue of British *Diptera*, 2nd edition, VERRALL (1414).—AUSTEN, n. gen. (49).—DALE, 2 novelties, *Chlorops rufina*, *Phytomyza flaviventris*, Ent. Mag. xxxvii, p. 75.—*Heteromyza*, novelty, COLLIN (288).—*Lophosia fasciata*, novelty, ADAMS, p. 212, Ent. Mag. xxxvii.—*Culex moritans*, *diversus* n. spp., THEOBALD (1358).—Novelties, localities for *Tachinidæ*, WAINWRIGHT, pp. 212–215, Ent. Mag. xxxvii.—Novelty, *Macrodiptosis volvens*, SHARP, p. 281, Ent. Mag. xxxvii.—Distribution of *Anopheles*, NUTTALL (978).

Aphaniptera. *Ceratophyllus newsteadi* n. sp., ROTHSCHILD (1186).

Hemiptera. BUCKTON, *Aphidæ* n. sp. (178).—Monograph of British *Coccidæ*, NEWSTEAD (962).—N. spp. *Coccidæ*, NEWSTEAD (963).—Novelty, *Ripersia tomlini*, DONISTHORPE, p. ix, P. ent. Soc. London 1901.

Neuroptera. LUCAS, Entomologist, p. 70.—*Chrysopa dorsalis*, novelty, McLACHLAN (898).—Fossil *Foqea* n. sp., ALLEN (16).—*Odonata* in 1900, LUCAS, pp. 65–69, pl. i, Entomologist xxxiv.

Orthoptera. *Panchlora viridis* in England, JENVEY, p. 243, Ent. Rec. xiii.—*Orthoptera* in 1900, LUCAS, pp. 165–167, Entomologist xxxiv.

LOCAL LISTS.

The arrangement adopted in each Order is roughly, Channel Islands, England from South to North and from West to East, Wales, Scotland, Ireland.

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Insecta. Alderney, LUFF (859).—S. Devon, PORRITT, p. 329, Entomologist xxxiv.—Hampshire, *H. Goss and others, the Victoria History of the Counties of England.—New Forest, BOUSKELL, pp. 459–469, Tr. Leicester Soc. v.—Suffolk, MORLEY, pp. 64–66, Ent. Mag. xxxvii.—Bury St. Edmunds, TUCK, pp. 156, 157, Tr. Norfolk Soc. vii.—Norfolk, *Dipt. Hym.*, WAINWRIGHT, pp. 201–203, Entomologist xxxiv.—Norfolk, ELLIOTT & MORLEY, pp. 343–346, Entomologist xxxiv.—Lincolnshire, THORNLEY, pp. 62–64, Naturalist 1901.—Clyde area, DALGLISH, MALLOCH, KING, GRIMSHAW, HENDERSON, FERGUSON, MURPHY, TAYLOR, BOYD, Fauna Clyde area, pp. 215–317.—*Glasgow, ORD, Ann. Andersonian Nat. Soc. ii, pt. 2, 1900, pp. 108–113.—Aberdeen, MEARNs (903).

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Forest, ADAMS, pp. 172, 297, Ent. Mag. xxxvii and BANKES, t. c. p. 99 and DALE, t. c. p. 13 and WELLS, p. 207, Entomologist xxxiv.—Eastbourne, ADKIN, p. 253, Entomologist xxxiv and BLENKARN, t. c. p. 26.—Dover, STOCKWELL, pp. 26, 252, Entomologist xxxiv.—Brighton, HYAMS, p. 351, Entomologist xxxiv.—N.W. Kent, BOWER, p. 45, Ent. Mag. xxxvii.—North Kent, BARRAUD, p. 28, Entomologist xxxiv.—Gravesend, HUGGINS, p. 255, Entomologist xxxiv.—Surrey, WARNE, p. 297, Entomologist xxxiv. Wiltshire, SLADEN, p. 299, Entomologist xxxiv.—Worcestershire, DAY, p. 296, Entomologist xxxiv.—Hertfordshire, BARRAUD, pp. 357–360, Entomologist xxxiv and GIBBS, pp. 43–45, Tr. Hertfordsh. Soc. xi.—Herefordshire, Wood, additions to list of *Lepidoptera* since 1892, with notes of capture, Tr. Woolhope Club 1898–1899, pp. 186–189.—Northamptonshire, Goss, pp. 58–61 & 148, Ent. Mag. xxxvii.—Cambridge, CRISP, p. 376, Ent. Rec. xiii.—Sherwood, HARDY, Mem. Manchester Soc. xlv, No. xi, 5 pp.—Essex, MATHEW, p. 22, Entomologist xxxiv.—Suffolk, SPARKE, p. 296, Entomologist xxxiv.—Norfolk, WHEELER, p. 14, Ent. Mag. xxxvii.—Staffordshire, FRERE, p. 10, Ent. Mag. xxxvii.—North Staffordshire, BOSROCK, pp. 59–63, Rep. North Staffordsh. Club xxxv.—Yorkshire *Lep.* in 1900, HEWETT, pp. 81–98, 108, Naturalist 1901.—Yorkshire, *S. convolvuli* larva, WHITAKER, p. 289, Naturalist 1901.—Scarborough, *Arge* and *Thecla quercus*, BARKER, p. 291, Naturalist 1901.—Burnley, moths and butterflies, CLUTTEN & WRIGHT, J. Burnley Soc. No. 18, 1901.—Kendal, Moss, Rep. Kendal ent. Soc. iii, pp. 26–30.—Berwick-on-Tweed, *S. convolvuli*, BOLAM, p. 118, Ann. Scot. Nat. Hist. 1901.—Anglesea, FREER, p. 12, Ent. Mag. xxxvii.—Scotland, *Sphinx convolvuli*, SERVICE, p. 238, EVANS, p. 239, BROWN, p. 240, Ann. Scott. Nat. Hist. 1901.—S. W. Scotland, DALGLISH, pp. 133–135, Ent. Rec. xiii.—Glasgow, *Charocampa neri*, DALGLISH, p. 52, Ann. Scott. Nat. Hist. 1901.—Bonhill, Dumbartonshire, MALLOCH (872).—Arran, SHARPIN, p. 24, Entomologist xxxiv.—Breadalbane, Goss, p. 227, Ent. Mag. xxxvii.—Isle of Lewis, Entomologist xxxiv, pp. 305, 306.—Shetland, KING, p. 226, Ent. Mag. xxxvii.—Ireland, supplementary list continued, KANE, pp. 14 etc., Entomologist xxxiv and JOHNSON, t. c. p. 18, and GREER, p. 202, Irish Natural. x.—Co. Cork, DONOVAN, pp. 333–336, Entomologist xxxiv.—Co. Westmeath, MIDDLETON, p. 102, Entomologist xxxiv.—Carlinford, CARPENTER, p. 164, Irish Natural. x.

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(d.) *North Europe and Siberia* [see also (a.) and (b.)].

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Hemiptera. Hémiptères de Francorchamps, H. SCHOOTEDEN, Ann. Soc. ent. Belgique xlv, pp. 265-272.—Belgium, *Aphidæ*, SCHOOTEDEN (1226).—Croatia, Prilozi entomoloskoj fauni Hrvatske, Rad. Jugoslav. Ak., LONGHOFFER, No. 141, pp. 11-25.

Neuroptera. Holland, *Boreus*, CAPPEL, Tijdschr. Ent. xlv, Verslag p. 37.—Switzerland, *Trichoptera*, McLACHLAN (899).—Engadine, McLACHLAN, pp. 160-162, Ent. Mag. xxxvii.—Germany, *Psocidæ*, ENDERLEIN (416).—Bohemia, Klapálek (760).—Austria, *Trichoptera*, MORTON (947).

Collembola. BÖRNER (137, 138, 139, 141).—Switzerland, CARL (213).—Moravia, ABSOLON (4, 5, 9, 10).

Orthoptera. Galicia, SMRECZYŃSKI, pp. 67-72, Sprawozd. Kom. Krajo. xxxv, Cz. ii.—Centr. Russia, SEMENOW, Rev. Russe Ent. i, p. 18.

(f.) *France* [see also (a.), (b.) and (g.)].

Insecta. Normandy, GADEAU DE KERVILLE (726).

Coleoptera. ABEILLE (1), BEDEL (82, 83), CARRET (218), CHOBAUT (238).

CHOBAUT, *Rhyssenus*, Bull. Soc. Nîmes xxviii, pp. 77-82; France and Corsica, DESBROCHERS (331, 333); FAUVEL (441), PEYERIMHOFF (1030, 1031), PEYERIMHOFF & SAINTE-CLAIRE-DEVILLE (1032).—PIC, Renseignements sur l'augmentation de la Faune française, Echange xvii, pp. 47, 55.—RÉGIMBART (1110). SAINTE-CLAIRE-DEVILLE (1199, 1200).—Catalogue des *Coléoptères* de la famille des *Carabiques* recueillis dans le département de l'Orne, Bull. Soc. Normandie (5) iii, pp. 3-43.—Seine, BEDEL (82).—Paris, DELVAL, pp. 225, 226, Bull. Soc. ent. France 1901.—Seine-et-Oise, BEDEL, p. 318, Bull. Soc. ent. France 1901.—Seine-et-Oise, *Malachius spinosus*, Bull. Soc. ent. France 1901, p. 174.—ALLIER, Rev. Sci. Bourbonnais xiv, p. 24.—l'Aude, Catalogue part 4, GAVOY, pp. 97-148, Bull. Soc. Aude xii, *Lucanidae* to *Heteromera*.—Gironde, BELLERADE, DE JOIGNY, COUTURES, *Georysidae*, *Parnidae*, *Heteroceridae*, *Staphylinidae*, Act. Soc. Linn. Bordeaux lv, pp. 251-29.—Bordeaux, LAMBERTIE, Pr. verb. Soc. Linn. Bordeaux lvi, p. cxix; PÉREZ, t. c. p. cxxxiii.—Gard, *Aurigena*, MINGAUD, Bull. Soc. Nîmes xxviii, p. 139.—Insectes des carrières des Angles (Gard), CHOBAUT, pp. 72-76, Bull. Soc. Nîmes xxvii.—Puy de-Dôme, QUITTARD, pp. 36, 37 etc., Echange xvii.—Cévennes and Velay, MAYET, pp. 30-32, Bull. Soc. ent. France 1901.—Pyrenees, H. DU BUYSSON, Frelon x, pp. 1-28, 33-36.

Hymenoptera. France & Corsica, FERTON (454), MARSHALL (885), PIC (1050, 1054).—Loire-inférieure, Dominique, *Fossoria*, *Vespidæ*, *Chrysididæ*, Bull. Soc. Ouest France (2) i, pp. 505-511.

Lepidoptera. CHRÉTIEN (245, 246, 247), CHRÉTIEN, p. 300, Bull. Soc. ent. France 1901; DIETZE (343).—Paris, DUMONT, p. 362, Bull. Soc. ent. France 1901, MABILLE, p. 199, Bull. Soc. ent. France 1901.—Bordeaux, *Nola* larvæ, BROWN, pp. cxlix, cl, Pr. verb. Soc. Linn. Bordeaux lvi.—Cévennes, JONES, pp. 261-264, Ent. Mag. xxxvii.—Vernet-les-Bains, HOMBERG, p. 317, Bull. Soc. ent. France 1901.—S. France, Corsica, WALSHINGHAM (1429).

Hemiptera. LAMBERTIE (805).—AZAM, local lists, Bull. Soc. ent. France 1901, p. 191.—Paris, ROYER, pp. 334, 335, Bull. Soc. ent. France 1901.—Saint-Cloud, ROYER, p. 128, Bull. Soc. ent. France 1901.

Orthoptera. AZAM (52).—BUYSSON, p. 103, Bull. Soc. ent. France 1901.—HOULBERT, p. 27, GIARD, p. 28, Bull. Soc. ent. France 1901.

(g.) *Southern Europe and Mediterranean Basin* [see also (a.), (b.) and (f.)].

Insecta. Valtellina, Galls, CORTI (300).—Balearic Islands, POULTON (1082).—Roumania, JAQUET, PONCY, STIERLIN, Bull. Soc. Bucarest ix, pp. 754-763.—Crimea, SEMENOW (1266).—Jerusalem, SWINTON, p. 260, Ent. Mag. xxxvii.—Jericho and the Dead Sea, SCHMIEDEKNECHT (1220).

Coleoptera. CHAMPION (227), PIC (1057), PORTA (1080), TSCHITSCHÉRINE (1397).—Portugal, DESBROCHERS (332).—Spain, ESCALERA (419, 420), LAUFFER (813), FUENTE (520), SHARP (1281), UHAGON (1404).—APFELBECK, Bosnia (30).—REITTER (1145, 1146, 1147).—Roumania, JAQUET & PONCY (689), REITTER (1142).—Dalmatia, FLEISCHER (463), Dalmatia, MÜLLER (953, 954), Dalmatia, PAGANETTI-HUMMLER, pp. 147-151, Allg. Zeitschr.

Ent. vi.—Greece, PIC (1041, 1052).—ABEILLE, N. Africa (2).—Algeria, BEDEL & BOURGEOIS (84), BOURGEOIS (144), CHOBOUT (237, 239), FAUVEL (440), PIC (1048), VACLOGER (1411), WEISE (1471).—Tunis, GROUVELLE (588), FAUVEL (439), NORMAND (975), THIÉRY (1366).—N. Africa, LEWIS (841).—SÉMÉNOW, Crimea (1271).—REITTER, Anatolia (1138).—DESBROCHERS, Syria (330).—Asia Minor, JAKOWLEFF (680), WEISE (1470).—RÉGIMBART, Syria (1109).—SWINTON, Jerusalem, pp. 156–160, Ent. Mag. xxxvii.—Armenia, REITTER (1131), SCHILSKY (1214).

Hymenoptera. FERTON (455), MORICE (935).—CAMERON, Spain (205).—VON HEYDEN, Spain, *Mutilla*, Bol. Soc. espan. i, p. 222.—*Apide* of Rome, LEPRI, pp. 141–148 etc., Boll. Soc. zool. Ital. ix.—MARSHALL, Corsica (884).—SCHNUSE, Corsica (1224).—BIGNELL, Corsica, *Formicidae*, p. 8, Ent. Mag. xxxvii.—KIEFFER, Corsica (733).—SCHLETTERER, S. Istria, (1219).—ÉMERY, Cephalonia (408).—GHIGI, Cephalonia (551).—MARSHALL, Tunis (885).—Algeria, HANDLIRSCH (601), SAUNDERS (1205), FOREL (478).—KRIECHBAUMER, Egypt (792).—SZÉPLIGETI, Syria (1348).—TROTTER, Asia Minor (1378).

Lepidoptera. FLETCHER, pp. 220 etc., Entomologist xxxiv.—WALSINGHAM, Spain (1430).—ROSTAGNO, Italy (1183).—CANNAVIELLO, H. Sur les *Noctuae* de la région de Vésuve, Miscell. ent. ix, pp. 81–89.—SANTOROSILIPIGNI, Messina, Boll. Soc. zool. Ital. ix, pp. 263, 264.—FUCHS, Sicily (514).—REBEL, Bosnia (1107).—AIGNER-ABAFI, Roumania (11), CARADJA, Roumania (212), FLECK (462), MONTANDON, Bull. Soc. Bucarest ix, pp. 563–568.—N. ROTHSCHILD, Egypt and Soudan (1184).—NICHOLL, Syria (969, 970).—WARREN, Syria (1438).—PÜNGELER, Palestine (1092).

Diptera. TROTTER (1379).—GIRSCHNER, Spain (563).—ALESSANDRINI, Roma, p. 269, Boll. Soc. zool. Ital. ix.—BISCHOF, Algeria (113).

Hemiptera. MELICHAR, Spain (912).—MELICHAR, Istria (914).—DE CARLINI, Cephalonia, Bull. Soc. ent. Ital. xxxiii, pp. 75–79.—HORVÁTH, Asia Minor (642).—MONTANDON, Roumania, Bull. Soc. Bucarest ix, pp. 744–753.—KIRKALDY, N. Africa (757).

Thysanoptera. REUTER (1161).

Odonata. R. MARTIN, Algeria, pp. 249, 250, Feuille Natural. xxxi.

Aptera. SILVESTRI, Italy (1293).—ABSOLON, Karst (7).—Roumania, *Collembola*. JAQUET & CARL, Bull. Soc. Bucarest ix, p. 542.—SILVESTRI, Tunis (1293).

Orthoptera. BOLIVAR, Spain (131).—AZAM, Cyprus (51).

(h.) *Caucasus* and *West and Central Asia*, including *Arabia* and *Socotra* [see also (a.) and (b.)]: for Tibet see 6.

Coleoptera. ARROW, Arabia (32).—BERNHAEUER, Centr. Asia (94).—DU BUYSSON, Transcaucasus (192).—JACOBSON, Siberia and Central Asia (670).—JAKOWLEFF, W. Asia (682, 684).—KOENIG, Caucasus (766).—REITTER, Centr. Asia (1122).—REITTER, Caucasus (1127).—REITTER, Turkestan and Buchara (1132).—REITTER, Caucasus (1135).—REITTER, Central Asia (1139).—REITTER, Buchara (1140).—REITTER, Caucasus (1150).—SEMÉNOW, Caucasus (1273).—SPAETH, Aden (1322).—SUMAKOW, Centr. Asia (1342).—SUMAKOW, W. Asia (1343).—TSCHITSCHÉRINE, Centr. Asia (1390).—TSCHITSCHÉRINE, Caucasus (1391).—TSCHITSCHÉRINE, Persia (1394).—WEISE, Buchara (1476).

Hymenoptera. R. DU BUYSSON, Centr. Asia (194).—FRIESE, Arabia (492).—KÖHL, Arabia (767).—KOKUJEW, W. Asia (771).—SEMÉNOW, Centr. Asia (1268).—SZÉPLIGETI, Persia (1350).

Lepidoptera. HAMPSON, Sokotra (597).—PÜNGELER, Chinese Turkestan (1091).—REBEL, W. Asia (1106).

Diptera. LICHTWARDT, Caucasus (843).—PLESKE, Caucasus (1071).

Hemiptera. DISTANT, Aden (354).—DISTANT, Perim (357).—West Asia incl. Persia JAKOBLEV (685).

Orthoptera. KRAUSS, Centr. Asia (787).—SEMENOW, Caucasus (1267).—SEMENOW, W. Asia (1275).—SÉMÉNOW, N. Korea (1272).

4. AFRICA (TROPICAL & SOUTH). For North Africa, see 3 (g.):
for Comoro Ids., see 5; Socotra, see 3 (h.).

The subregions, KOLBE (779).

Insecta. SHARPE (1283).

Coleoptera. ARROW (32, 35, 38), BELON (87), BERNHAUER (99), BOURGEOIS (143), BRENSKE (168), CLOUËT (252), FAIRMAIRE (428, p. 236), FAIRMAIRE (433), FELSCHÉ (445), FLEUTIAUX (467), GORHAM (568A), GROUVELLE (588), HORN (638, 639), JACOBY (673), JORDAN (694, 695), KOLBE (776, 777, 778), LESNE (836), LEWIS (841, 842), MOSER (950), OBST (981), OHAUS (983, 984), PÉRINGUEY (1014, 1015, 1017), PIC (1039, 1049, 1055, 1056, 1059), RAFFRAY (1100, 1102, 1103), REITTER (1129), SCHWARZ (1251), THÉRY (1364, 1365), TSCHITSCHÉRINE (1384, 1386, 1388, 1392, 1393), VILLARD (1422), VOIGTS (1424), WEISE (1471, 1472, 1473, 1476, 1477).

Hymenoptera. ANDRÉ (21), ASHMEAD (44), R. DU BUYSSON (197), EMERY (401 Ceylon! 402, 407, 408), ENDERLEIN (409), FOREL (472, 473, 476), FRIESE (492), HANDLIRSCH (599, 600), KOHL (767), KRIECHBAUMER (789), MAYR (895), PÉREZ (1011), PÉRINGUEY (1016), SZÉPLIGETI (1350).

Lepidoptera. AURIVILLIUS (47), BUTLER (182, 184—188); Mombasa, *Rhopalocera*, BUTLER, Ann. Nat. Hist. viii, pp. 111, 112.—Uganda, *Rhopalocera*, BUTLER, p. 562, Ann. Nat. Hist. vii.—DISTANT (351), DRUCE (374, 375), GROSE-SMITH (582), HAMPSON (592, 593, 597), LATHY (812), RAGONOT (1104), ROTHSCHILD (1187), SHARPE (1284), WARREN (1436, 1439).

Diptera. BEZZI (105), COQUILLETT (293), ENDERLEIN (413), RICARDO (1164), THEOBALD (1358, 1359).

Aphaniptera. ENDERLEIN (415).

Hemiptera. BREDDIN (164), BUCKTON (177), COUTIÈRE & MARTIN (301, 302), DISTANT (349, 353—358), JAKOBLEV (685), KIRKALDY (757), MELICHAR (911), SCHOUTEDEN (1227).

Coccida. COCKERELL (267), COCKERELL & KING (282).

Neuroptera. KOLBE (775).

Thysanura. PÉRINGUEY (1017).

Orthoptera. BRANCSIK (151), KRAUSS (788), REHN (1116, 1117), SÉMÉNOW (1270).

5. MADAGASCAR, including SEYCHELLES and MASCARENE IDS.

Coleoptera. ARROW (32, 33, 36, 37), BERNHAUER (96, 98), CLOUËT (252), FAIRMAIRE, including Mauritius and Bourbon (427, 428), FAIRMAIRE (429, 431), JACOBY (675), LESNE (836), LÉVEILLÉ (840), PIC, Mauritius (1040, 1043), PIC (1055), SCHWARZ (1250, 1251), TSCHITSCHÉRINE (1392), WEISE (1472).

Hymenoptera. ANDRÉ (20).

Lepidoptera. HAMPSON (592), RAGONOT (1104), WARREN, Bourbon (1436).

Diptera. GRANDPRÉ & CHARMOY, Mauritius (574), THEOBALD, Mauritius (1356).

Hemiptera. DISTANT (347), MELICHAR (911).

6. TROPICAL and EASTERN ASIA, with JAPAN.

For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

N.B. In this division every paper that touches on India or Japan is pointed out by means of these names.

Coleoptera. ARROW, incl. India (32); ARROW, India incl. Andamans, Penang (34); ARROW, India and Penang (35), BOILEAU (128), BOILEAU, Japan *Lucanidae*, Bull. Mus. Paris 1901, p. 66; CLOUËT, inclusive of India (252), CSIKI, China, Mongolia (305), FAIRMAIRE, Singapore (428), p. 236; FAIRMAIRE, India (432), FAUVEL, Japan (436, 443), FELSCH, Tonkin (446), FLEUTIAUX, Japan (466), GAHAN, incl. India (525), GORHAM, India, Ceylon (568), HELLER (610), HORN, incl. India (636), JACOBY, India (672), JAKOWLEFF, incl. India (676), JAKOWLEFF, Mongolia (682), JANSON, India (688), LESNE, incl. India (836), LESNE, Tonkin (837), LESNE, Laos (838), LESNE, Burma *Bostrychides*, Ann. Soc. ent. Belgique xlv, p. 85; LEWIS, India and Ceylon (841), LEWIS, India (842), MÖLLENKAMP, Burma (925), MOSER, Perak (950), MOSER (951), PIC, India (1044), PIC, Japan (1046, 1049), PIC, India (1055), PIC (1058), RAFFRAY, Ceylon (1101), REITTER, Chinese Turkestan (1126), REITTER, China, Buchara etc. (1129), RITSEMA, India (1168), SCHENKLING, India (1212), SCHULTZE, N. China (1238), SCHWARZ (1246), SCHWARZ, India (1248, 1251), SÉMÉNOW, Mongolia, Kashgar, Kashmir, Tsé-tchuen (1269), TSCHITSCHÉRINE, India (1386), TSCHITSCHÉRINE, Japan (1389), TSCHITSCHÉRINE, Korea (1395), WEISE (1467), WEISE, Andaman Ids. (1475), WEISE, India (1476).

Hymenoptera. BINGHAM, India (111), CAMERON, incl. India (202), CAMERON, India (203, 208), CAMERON, India, Japan (209), EMERY, Ceylon (401), FOREL (476), FOREL, incl. Japan (478), KOHL, Korea, Mongolia, China, Buchara (767), KOHL, Ceylon (770), KOKUJEW, Assam (773), KONOW, incl. Japan and India (784), MOCÁRY & SZÉPLIGETI, China, Mongolia (924), PÉREZ (1011).

Lepidoptera. BUTLER, Ceylon (186), DRUCE, Perak and China (374); Catalogue of the *Heterocera* of Sikkim and Bhutan, Part x, *Hypnidae*, DUDGEON, ELWES & HAMPSON, pp. 672-674, J. Bombay Soc. xiii.—FRUHSTORFER (509, 511, 512), FRUHSTORFER, Tonkin (513), GREEN, Ceylon, electric light, pp. 87-90, Ent. Mag. xxxvii.—GROSE-SMITH (582), HAMPSON, incl. India (592), HAMPSON, India (595), HAMPSON, incl. India and Japan (597), LEECH, incl. Japan (829), MOORE, India, etc. (930), NICÉVILLE, India (967), PÜNGELER, Chinese Turkestan (1091), RAGONOT, incl. Japan, India (1104), SNELLEN, Assam (1312), SWINHOE, incl. India (1347), SWINHOE, incl. India, Andamans (1346), WARREN, incl. India and Japan (1437, 1438).

Diptera. DÖNITZ (373), GILES, India (556, 557), GREEN (579), KERTÉSZ, China, Mongolia (719), KERTÉSZ (720), KERTÉSZ, Singapore (721), KERTÉSZ, incl. India (723), LAVÉRAN, Tonkin (817), PLESKE, China (1072), RICARDO, Afghan (1165), THEOBALD, incl. India and Japan (1358).

Hemiptera. DISTANT (346), DISTANT, incl. India (347, 352), DISTANT, China (350), DISTANT, incl. India (354), DISTANT, Singapore (355), DISTANT, incl. India, Ceylon (357), DISTANT, India, Ceylon (358), DISTANT, incl. India and Andamans (359), HORVÁTH, China, Mongolia (641), JAKOWLEFF, China, Gan-su (681), KIRKALDY, Ceylon (748, 750), KIRKALDY, China and Japan (751), KIRKALDY, Singapore (757), KUHLGATZ, India (794), MELICHAR (911), NEWSTEAD, Japan, *Coccidae* (963).

Orthoptera. BOLIVAR, China, Mongolia (129), SEMENOW, Ladak, *Forficulidae* (1275), SÉMÉNOW, N. Korea (1272).

7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

N.B. In this division, 7, when the name of an island, or islands, is mentioned this indicates that the paper refers *only* thereto.

Insecta. KONIGSBERGER & ZIMMERMANN (780).

Coleoptera. ARROW (34), BOILEAU, Sumatra (126), BOILEAU (127); BOUCHARD, Sumatra (142), CLOUËT (252), GAHAN (525), GESTRO, Borneo, Java (549), GESTRO, Sumatra (550), GORHAM, Sumatra, Borneo (568), HELLER, New Guinea (609), HORN (636, 639), JACOBY, Sumatra (672), KRAATZ, N. Guinea (785), LESNE (836), LEWIS, Sumatra (841), LEWIS (842), MÖLLENKAMP (925), MOSER (950), OHAUS (983), OHAUS, Sumatra (985), PIC, Sumbawa (1059), RÉGIMBART (1108), RITSEMA, Borneo, Sumatra (1169), RITSEMA, Sumatra (1170), SCHENKLING, Sumatra (1212), SCHWARZ, Borneo (1248), SCHWARZ (1251), SPAETH, Sumatra, Borneo (1323), THÉRY, Alor Isld. (1365), WEISE, N. Guinea (1469), WEISE, Aru (1474), WEISE, Sumatra (1475).

Hymenoptera. CAMERON (201), CAMERON, Borneo (202, 209), EMERY, Borneo (402, 407), EMERY, Celebes (404), ENDERLEIN, New Guinea (409), FOREL, Java (472), FOREL (473, 476), FOREL, Borneo (478), FRIESE (493), KONOW (784), KRIEGER, New Guinea (793), PÉREZ (1011), SZÉPLIGETI (1350).

Lepidoptera. BUTLER (189), DRUCE (374), FRUHSTORFER, New Guinea (510), FRUHSTORFER (511), GROSE-SMITH (582), HAMPSON (592, 597), HERING, Sumatra (617), PAGENSTECHER (1000), PIEPERS & SNELLEN, Java (1062), RAGONOT (1104), ROTHSCHILD, New Guinea (1187), ROTHSCHILD & JORDAN (1189), SEMPER, Philippines (1276), SNELLEN (1311, 1312), SNELLEN, Kangean Islands (1313), STICHEL, Borneo (1330), SWINHOE (1346, 1347), WARREN (1437, 1438).

Diptera. DÖNITZ (373), KERTÉSZ (721, 723), THEOBALD (1358), ZEHNTNER, Java (1508).

Hemiptera. BREDDIN, Sumatra, Borneo (159, 160), BREDDIN (162, 164, 165), BREDDIN, Celebes (163), BREDDIN, Sumatra (166), BUCKTON (177), COUTIÈRE & MARTIN, Philippines (303), DISTANT, Borneo, Sumatra (347), DISTANT (354, 355, 356, 357), KIRKALDY, Celebes (748), KIRKALDY (752), KIRKALDY, Sumatra (756), KIRKALDY, Sumatra & Pulo-Laut (757), MELICHAR (911).

Psocida. ENDERLEIN, Borneo (416).

Collembola. SCHÖTT (1225).

Thysanura. SILVESTRI (1293).

8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

Insecta. FROGGATT (505).

Coleoptera. ARROW (33, 35), BLACKBURN (115-117), CLOUËT (252), GAHAN (525), HORN (639), LESNE (836), LEWIS (841), OHAUS (983), PIC (1055), SCHENKLING (1212), SCHWARZ (1251), SLOANE (1302), TSCHITSCHÉ-RINE (1384); WALKER, *Nacordes melanura*, P. Linn. Soc. N. S. Wales xiv, p. 760; WEISE (1478).

Hymenoptera. CAMERON (208, 209), EMERY (402), FOREL (473, 478, 480), KOKOUYEW (772), KRIEGER (793), SZÉPLIGETI (1350), TRYON (1382).

Lepidoptera. Catalogue of larvæ, BEUTENMÜLLER (104), DRUCE (374), HAMPSON (597), JOANNIS (690), LOWER (855), LUCAS (858), MEYRICK (922), RAGONOT (1104), SWINHOE (1346, 1347), WARREN (1437).

- Diptera*. CZERNY (313), KERTÉSZ (723), THEOBALD (1358).
Hemiptera. BREDDIN (165), BUCKTON (177), DISTANT (347, 356, 357),
 FROGGATT, *Psyllidæ* (497), GREEN, *Coccidæ* (580), KIRKALDY (748),
 LIDGETT, *Coccidæ* (844, 845).
Odonata. MARTIN (887).

9. NORTH AMERICA. Bahamas and Bermudas, see Antilles.

Insecta. COCKERELL (259), COCKERELL, New Mexico, *Psyche* ix, pp. 272, 273, HOWARD (646), HUBBARD, Florida, caves (656), HUBBARD, Arizona and California (655), LUGGER, Minnesota (860), NEEDHAM & BETTEN (957), SLOSSON (1303, 1304), SCOTT & FISKE, Georgia, pp. 24-36, Bull. U. S. Dep. Agric. Ent. xxxi.

Coleoptera. BERNHAUER (99), DAVIS, Rhode island (326), DURY (379), FALL (434, 435), HAYWARD (606), JACOBY (674), KLAGES, Pennsylvania (758), LESNE (836), LEWIS (842), SCHAEFFER (1206), SCUDDER, fossil (1254), WASMANN (1448), WEBB (1453), WICKHAM (1486).—Kansas, KNAUS, pp. 110-115, Canad. Ent. xxxiii.—Arizona, PALM, p. 91, J. N. York Ent. Soc. ix.—SCHWARZ, *Chrysina*, p. 379, P. ent. Soc. Washington iv.—WENZEL, Philadelphia, Ent. News Philad. xii, pp. 75, 76.—WICKHAM, New Mexico, *Psyche* ix, p. 150.

Hymenoptera. ASHMEAD (41-43, 45), BRADLEY (148, 149), R. DU BUYSSON (194), CAMERON (206), COCKERELL (253, 255, 256, 260-266, 269), EMERY (407), FOREL (478), FOX (483), LOVELL (854), MORICE & COCKERELL (940), PÉREZ (1011), ROBERTSON (1172, 1173), TITUS (1369, 1370), VIERECK (1419), WHEELER (1480).—Ants of Massachusetts, KING, pp. 260-262, *Psyche* ix; of New England, id. t. c. pp. 270, 271.—Alaska, *Apidæ*, VIERECK, p. 325, Ent. News Philad. xii.

Lepidoptera. BARNES (71), BEUTENMÜLLER, New York (102, 103), BROWNING (171), BUSCK (181), DIETZ (342), DYAR (388-391), FERNALD (450), GODMAN (566), GROTE (585), LYMAN (866), NEWCOMB (961), POLING (1074), RAGONOT (1104), SCHAUUS (1208-1210), SMITH (1306), SNYDER, Colorado (1314), WARREN (1440).—Alberta, *Macrolepidoptera*, DOD, pp. 40-42 etc., Canad. Ent. xxxiii.—Manitoba, HEATH, pp. 98-100, Canad. Ent. xxxiii.—Manitoba, *Geometridæ*, HANHAM, Canad. Ent. xxxiii, pp. 213-220.—Nebraska, *Rhopalocera*, CARY, Canad. Ent. xxxiii, pp. 305-311.—Staten island, JOUTEL, p. 190, J. N. York Ent. Soc. ix.—SKINNER, *Rhopalocera*, Ent. News Philad. xii, pp. 170, 171.—Yellowstone Park, *Rhopalocera*, BURRISON, p. 244, Ent. News Philad. xii.—BUSCK, *Limnæcia*, P. ent. Soc. Washington iv, p. 421.

Diptera. BANKS (65), BRUES (172, 173), COCKERELL (276), COQUILLET incl. Alaska (291), COQUILLET (294-296, 298, 299), DOANE (361), HARRINGTON, Ottawa (603), HOWARD (647), KINCAID (736), MELANDER (910), PERGANDE (1013), ROBERTSON (1174), THEOBALD (1358), TOWNSEND (1375).

Hemiptera. *Homoptera* common to N. America and W. Europe, KIRKALDY (753), BALL (59), BOYNTON, N. York, *Coccidæ* (147), BUCKTON (177), CADELL (220), COCKERELL, *Coccidæ* (269-273), COCKERELL, *Aphidæ* (275), COCKERELL & COCKERELL, *Coccidæ* (281), COCKERELL & COCKERELL, *Aphidæ* (285), COLEMAN, *Coccidæ* (286), HUNTER, *Coccidæ*, Kansas (658), KING, *Coccidæ* (738-740), KIRKALDY (757), KUWANA, *Coccidæ* (801), MACGILLIVRAY (869), OSBORN (988), SANDERSON, *Aphidæ* (1201), UHLER (1405), OSBORN, additions to the list of Ohio *Hemiptera*, Rep. Ohio Ac. ix, pp. 36, 37.

Neuroptera. BANKS (64, 67), CURRIE, *Odonata*, Alaska (310).—CURRIE, *Myrmeleonidæ* (312), HARVEY, *Odonata*, Maine (605), HINE (628, 629), Ohio, *Odonata*, KELLCOTT (709), MCCLENDON (897), NEEDHAM & HART, *Odonata* (958), Indiana, *Odonata*, WILLIAMSON (1496).

Orthoptera. Alphabetical Index, SCUDDER (1256), CAUDELL (221), McNEILL (900, 902), MORSE (943-945), REHN (1115), SCUDDER (1257, 1258, 1260-1262).—Labrador, PACKARD, p. 191, *Psyche* ix.

Collembola. Distribution and dispersal, FOLSOM (470), FOLSOM (471).

10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

Insecta. GODMAN (566).

Coleoptera. JACOBY (674), LESNE incl. Lower California (836), OHAUS (982), PIC (1042, 1044, 1055), SCHWARZ (1251), SPAETH (1321).

Hymenoptera. EMERY (402, 407), FOREL (473, 477, 478), PÉREZ (1011), VACHAL (1410), WHEELER (1483), SZÉPLIGETI (1350).

Lepidoptera. DOGNIN (365), DRUCE (374, 375), DYAR (385), GODMAN (566), HAMPSON (592, 597), RAGONOT (1104), SCHAUS (1207-1211), SMYTH (1310), STICHEL (1329), WARREN (1440).

Diptera. THEOBALD (1358).

Hemiptera. BALL (59), BUCKTON (177), BREDDIN (167), COCKERELL, Costa Rica, *Coccidæ*, p. 171, *Ent. Mag.* xxvii; KIRKALDY (752), MELICHAR (911), OSBORN & BALL (990).

Neuroptera. BANKS (63).

Orthoptera. BOLIVAR (130), REHN (1114, 1118).

11. ANTILLES, including BERMUDAS, BAHAMAS.

Coleoptera. FAUVEL (438), JACOBY (672), LESNE (836), LÉVEILLÉ, Martinique (840).

Hymenoptera. ASHMEAD (45), FOREL, incl. Bahamas (478).

Lepidoptera. BUTLER (183), GODMAN (566), HAMPSON, Jamaica, Bahamas (596), RAGONOT (1104), SCHAUS (1207-1209), SCLATER, St Lucia, p. 223, *P.Z.S.* 1901, i, WARREN (1440).

Diptera. THEOBALD (1358).

Hemiptera. BUCKTON (177), DISTANT (347), DISTANT, Bahamas (348), DISTANT, Jamaica (355), DISTANT, Grenada (357), MAXWELL-LEFROY, *Coccidæ* (892), MELICHAR (911), UHLER, Cuba, Haiti (1405).

Thysanoptera. GIARD, Guadeloupe (555).

12. SOUTH AMERICA, including TRINIDAD.

Insecta. KAYE (706), KIRBY (744).

Coleoptera. BERG (89, 90), BERNHAUER (99), FAUVEL (437, 438), FAUVEL, Tierra del Fuego (442), FELSCHÉ (445), GERMAIN, Chili (537-548), HORN (639), JACOBY (672, 674), JAKOWLEFF (679, 683), LESNE (836), LEWIS (842), MÖLLENKAMP (925), PIC (1044), PIC (1049, 1051, 1055, 1059, 1060), RÉGIMBART (1108), SCHULZ (1240), SCHWARZ (1249, 1251), SILVESTRI (1291), SPAETH (1321), THERESE VON BAYERN (1363), TSCHITSCHÉRINE (1384, 1386, 1392), WATERHOUSE (1450, 1451), WEISE (1476).

Hymenoptera. ANDRÉ, Patagonia, Paraguay (22), ASHMEAD, Trinidad (45), R. DU BUYSSON (194), COCKERELL (258), DOMINIQUE (368), DUCKE (376-378), EMERY (402, 407), ENDERLEIN (409, 410), FOREL (472, 473, 476, 478, 479), FRIESE (491, 493), HANDLIRSCH (598), KONOW (784), KRIECHBAUMER (789, 792), MANTERO, Patagonia (875), PÉREZ (1011), SCHROTTKY (1234), SZÉPLIGETI (1350), VACHAL (1410).

Lepidoptera. BÖNNINGHAUSEN (132), BUTLER (188, 191), DOGNIN (363-366), DRUCE (374, 375), DYAR (382), GODMAN (566), HAMPSON (592), HAMPSON (597), HEYLAERTS (622), NÖLDNER (974), RAGONOT (1104),

ROTHSCHILD & JORDAN (1188), SCHAUS, incl. Trinidad (1208), SCHAUS (1209-1211), STICHEL (1331), THERESE VON BAYERN (1362), WEEKS (1458-1466).

Diptera. BISCHOF (113), HOUGH (645), Catalogue, HUNTER (659), KERTÉSZ (723, 724), RICARDO (1165), SILVESTRI (1290), THEOBALD (1358).

Aphaniptera. ENDERLEIN (415), WAGNER (1425).

Hemiptera. BREDDIN (166, 167), BUCKTON (177), COCKERELL, *Coccidæ* (274), DISTANT (347, 354-356), VAN DUZEE (380), HEMPEL, *Coccidæ* (611), HEMPEL (612), MELICHAR (911), MONTANDON (928), SILVESTRI, *Coccidæ* (1290).

Psocidæ. ENDERLEIN (416).

Termitidæ. SILVESTRI (1289), TSCHERWINSKY (1383).

Thysanura. SILVESTRI (1291), SILVESTRI, inclusive of Patagonia (1293).

Orthoptera. BRANCSIK (151).

PALÆO-ENTOMOLOGY.

[The following memoirs relate to fossil Insects, viz. :—ALLEN (16), BREDDIN (161), FLICHE (468), FRIČ (488), GOSS (572), GROTE (584), MEUNIER (918-920), SCUDDER (1253-1255), WILLIAMSON (1496).

Brief notes on various fossils supposed to be Insects from the chalk of Bohemia, FRIČ (488).

COLEOPTERA.

Tertiary *Coleoptera* from Florissant, a list of American tertiary fossil Col. with exception of *Rhynchophora*, SCUDDER, Mon. U. S. Geol. Surv. xl.

Carabidæ.

Amara revocata, pl. ii, fig. 6, *sterilis*, figg. 1, 9, p. 25, *veterata*, fig. 3, *povellii*, figg. 2, 5, p. 26, *danæ*, figg. 8, 10, 11, p. 27, N. America, tertiary, SCUDDER, Mon. U. S. Geol. Surv. xl, n. spp.

Bembidium obductum, p. 18, pl. i, fig. 9, *tumulorum*, p. 19, fig. 2, N. America, tertiary, SCUDDER, t. c., n. spp.

Brachynus newberryi, p. 32, pl. iii, fig. 10, pl. iv, fig. 8, *repressus*, pl. iv, fig. 6, p. 33, North America, tertiary, SCUDDER, t. c., n. spp.

Calosoma emmonsii, N. America, tertiary, SCUDDER, p. 16, pl. i, fig. 7, t. c., n. sp.

Carabites exanimus, N. America, tertiary, SCUDDER, p. 17, pl. i, fig. 4, Bull. U. S. Geol. Surv. No. 93; figured, pl. ii, fig. 7, SCUDDER, Mon. U. S. Geol. Surv. xl, n. sp.

Carabus jeffersoni, N. America, tertiary, SCUDDER, p. 15, pl. i, figg. 6, 10, t. c., n. sp.

Cymindis extorpesens, N. America, tertiary, SCUDDER, p. 32, pl. iii, fig. 4, t. c., and op. cit. xxix, p. 743, pl. xxiii, fig. 1, n. sp.

Evarthrus tenebricus, N. America, tertiary, SCUDDER, p. 24, pl. i, fig. 8, Mon. U. S. Geol. Surv. xl, n. sp.

Galerita marshii, N. America, tertiary, SCUDDER, p. 31, pl. iii, fig. 5, t. c., n. sp.

Harpalus nuperus, p. 34, pl. iii, fig. 6, *whitefieldii*, p. 35, fig. 7, N. America, tertiary, SCUDDER, t. c., n. spp.

Myas rigefactus, p. 20, pl. i, fig. 4, *umbrarum*, p. 21, fig. 11, N. America, tertiary, SCUDDER, t. c., n. spp.

Nebria oclusa, N. America, tertiary, SCUDDER, p. 17, pl. i, fig. 3, t. c., n. sp.

- Neothanes testeus*, pl. i, fig. 1, SCUDDER, Mon. U. S. Geol. Surv. xl.
Nomaretus serus, North America, tertiary, SCUDDER, p. 13, pl. i, fig. 1, t. c., n. sp.
Nothopus kingii, N. America, tertiary, SCUDDER, p. 34, pl. iv, fig. 2, t. c., n. sp.
Platynus tartareus, N. America, tertiary, SCUDDER, p. 30, pl. iii, figg. 7-9, t. c., n. spp.
Plochionus lesquereuxi, N. America, tertiary, SCUDDER, p. 31, pl. iii, fig. 2, t. c., n. sp.
Pterostichus pumpellyi, pl. iii, fig. 3, *walcotti*, fig. 1, p. 23, N. America, tertiary, SCUDDER, t. c., n. spp.
Stenolophus religatus, N. America, tertiary, SCUDDER, p. 35, pl. iv, fig. 1, t. c., n. sp.

Dystiscidæ.

- Agabus rathbuni*, N. America, tertiary, SCUDDER, p. 37, pl. iv, fig. 4, Mon. U. S. Geol. Surv. xl, n. sp.

Hydrophilidæ.

- Hydrobius maceratus*, N. America, tertiary, SCUDDER, p. 43, pl. v, fig. 3, Mon. U. S. Geol. Surv. xl, n. sp.
Hydrocharis extricatus, N. America, tertiary, SCUDDER, p. 41, pl. v, fig. 4, t. c., n. sp.
Tropisternus vanus, p. 39, pl. v, fig. 1, *limitatus*, fig. 2, p. 40, N. America, tertiary, SCUDDER, t. c., n. spp.

Staphylinidæ.

- Acylophorus immotus*, N. America, tertiary, SCUDDER, p. 47, pl. v, fig. 7, Mon. U. S. Geol. Surv. xl, n. sp.
Bledius morsei, pl. viii, fig. 6, p. 70, *soli*, figg. 10, 14, p. 71, *osborni*, figg. 11, 12, p. 72, *primitiarum*, fig. 13, p. 73, *fæcorum*, fig. 9, p. 74, N. America, tertiary, SCUDDER, t. c., n. spp.
Boletobius lyelli, p. 66, pl. viii, fig. 2, *funditus*, fig. 3, *durabilis*, figg. 4, 5, p. 67, *stygis*, fig. 7, p. 68, N. America, tertiary, SCUDDER, t. c., n. spp.
Geodromicus abditus, N. America, tertiary, SCUDDER, p. 77, pl. ix, fig. 3, t. c., n. sp.
Heterothops conticens, N. America, tertiary, SCUDDER, p. 48, pl. v, figg. 8, 9, t. c., n. spp.
Laasbius n. g. for *L. agassizii*, p. 49, pl. vi, fig. 4, *sectile*, fig. 3, p. 50, n. spp., Tertiary, N. America, SCUDDER, t. c.
Leptacinus rigatus, pl. vii, fig. 11, *fossus*, fig. 12, p. 59, *macleerei*, figg. 7, 15, p. 60, *leidyi*, fig. 14, *exsucidus*, fig. 13, p. 61, N. America, tertiary, SCUDDER, t. c., n. spp.
Lithocharis scottii, N. America, tertiary, SCUDDER, p. 63, pl. vii, fig. 16, t. c., n. sp.
Mycetoporius demersus, N. America, tertiary, SCUDDER, p. 69, pl. viii, fig. 6, t. c., n. sp.
Philonthus marcidulus, p. 54, pl. vi, figg. 5 etc., *invelatus*, p. 55, figg. 9, 10, *horni*, pl. vii, figg. 1, 2, p. 56, *abarus*, fig. 3, p. 57, North America, tertiary, SCUDDER, t. c., n. spp.
Platystethus carcarius, pl. ix, fig. 1, p. 75, *archetypus*, fig. 2, p. 76, N. America, tertiary, SCUDDER, t. c., n. spp.
Quedius chamberlini, pl. v, figg. 10, 11, *breweri*, pl. vi, figg. 1, 2, SCUDDER, t. c., n. spp.
Staphylinus lesleyi, p. 51, pl. vi, figg. 6, 7, *vetulus*, p. 52, figg. 11, 12, N. America, tertiary, SCUDDER, t. c., n. spp.

- Tachinus sommatius*, N. America, tertiary, SCUDDER, p. 64, pl. vii, figg. 8—10, t. c., n. sp.
Tachyporus nigripennis, N. America, tertiary, SCUDDER, p. 65, pl. viii, fig. 1, t. c., n. sp.
Triga cæni, N. America, tertiary, SCUDDER, p. 78, pl. ix, fig. 5, t. c., n. sp.
Xantholinus tenebrarius, N. America, tertiary, SCUDDER, p. 58, pl. vii, figg. 4—6, t. c., n. sp.

Silphidæ.

- Aggyrtes primiticus*, N. America, Tertiary, SCUDDER, p. 45, pl. v, fig. 6, Mon. U. S. Geol. Surv. xl, n. sp.
Silpha colorata, N. America, tertiary, SCUDDER, p. 44, pl. v, fig. 5, t. c., n. sp.

Nitidulidæ.

- Carpophilus restructus*, N. America, tertiary, SCUDDER, p. 86, pl. ix, fig. 9, Mon. U. S. Geol. Surv. xl, n. sp.
Epanurea n. g. near *Epurea* for *E. ingenta* Sc., SCUDDER, p. 86, t. c.
Nitidula prior, N. America, tertiary, SCUDDER, p. 87, pl. ix, fig. 11, t. c., n. sp.

Cucujidæ.

- Lithocoryne* n. g. near *Lathropus*, for *L. gravis* n. sp., N. America, tertiary, pl. ix, fig. 4, p. 83, SCUDDER, Mon. U. S. Geol. Surv. xl.
Pediacus perclitans, N. America, tertiary, SCUDDER, p. 82, pl. ix, fig. 7, t. c., n. sp.

Dermestidæ.

- Attagenus sopitus*, N. America, tertiary, SCUDDER, pl. ix, fig. 10, p. 85, Mon. U. S. Geol. Surv. xl, n. sp.

Byrrhidæ.

- Amphicyrta inhaesa*, N. America, SCUDDER, p. 91, pl. x, fig. 10, Mon. U. S. Geol. Surv. xl, n. sp.
Byrrhus romingeri, N. America, tertiary, SCUDDER, p. 93, pl. x, fig. 9, t. c., n. sp.
Cytilus tartarinus, N. America, tertiary, SCUDDER, p. 91, pl. x, fig. 6, t. c., n. sp.
Nosotetocus n. g. p. 16, for *N. marconi* n. sp., p. 17, pl. ii, figg. 2, 3, SCUDDER, Bull. U. S. Geol. Surv. No. 93.
Nosotetocus debilis, pl. x, figg. 1, 2, *vespertinus*, fig. 3, p. 90, N. America, tertiary, SCUDDER, Mon. U. S. Geol. Surv. xl, n. spp.

Parnidæ.

- Psephenus lutulentus*, N. America, tertiary, SCUDDER, p. 94, pl. x, fig. 8, Mon. U. S. Geol. Surv. xl, n. sp.

Scarabæidæ.

- Atænius patescens*, characters, p. 104, pl. xi, figg. 5, 8, 10, SCUDDER, Mon. U. S. Geol. Surv. xl.
Glaphyroptera lotharingiaca, Trias of Lorraine, FLICHE, p. 650, C.R. Ac. Sci. cxxxiii.

Buprestidæ.

Buprestites heeri n. n. for *B. agriloides* Heer 1883, nec Heer 1882, SCUDDER, pp. 99, Mon. U. S. Geol. Surv. xl.

Cebrionidæ.

Adocetus n. g. near *Scaptolenus* for *A. buprestoides* n. sp., N. America, tertiary, pl. x, fig. 12, p. 97, SCUDDER, Mon. U. S. Geol. Surv. xl.
Chrysobothris haydeni, pl. xi, fig. 1, characters, p. 100, SCUDDER, t. c.

Malacodermidæ.

Chauliognathus pristinus, pl. xi, fig. 3, characters, p. 101, SCUDDER, Mon. U. S. Geol. Surv. xl.

Cerambycidæ.

Parolamia rudis, characters of genus, p. 105, and species, p. 106, pl. xi, fig. 4, SCUDDER, Mon. U. S. Geol. Surv. xl.

Bruchidæ.

Spermophagus vivificatus, p. 113, pl. xi, fig. 6, characters, SCUDDER, Mon. U. S. Geol. Surv. xl.

Chrysomelidæ.

Donacia elongatula, N. America, tertiary, SCUDDER, p. 745, pl. xxiii, fig. 5, Mon. U. S. Geol. Surv. xxix, and op. cit. xl, p. 108, pl. xi, fig. 2, n. sp.
Oryctoscirtetes protogæum, characters of genus and species, p. 111, pl. xi, fig. 11, SCUDDER, t. c.
Saxinis regularis, N. America, tertiary, SCUDDER, p. 745, pl. xxiii, figg. 6 & 7, Mon. U. S. Geol. Surv. xxix and op. cit. xl, p. 108, pl. xi, figg. 7, 9, n. sp.

Coccinellidæ.

Adalia subversa, N. America, tertiary, SCUDDER, p. 80, pl. ix, fig. 6, Mon. U. S. Geol. Surv. xl, n. sp.
Chilocorus ulkei, N. America, tertiary, SCUDDER, p. 81, pl. ix, fig. 8, t. c., n. sp.

HYMENOPTERA.

Mymaridae of amber, MEUNIER (919).

Mymaridæ.

Anaphes splendens, schellwieniens, amber, MEUNIER, p. 284, Ann. Soc. Bruxelles xxv, n. spp.
Limacis baltica, amber, MEUNIER, p. 286, t. c., n. sp.
Litus elegans, amber, MEUNIER, p. 285, t. c., n. sp.
Malfattia n. g. *Mymaridæ* for *M. molitoræ*, n. sp., amber, MEUNIER, t. c.
Mymar duisburgi, referred to *Eustochus*, MEUNIER, p. 290, t. c.
Palacomymar n. g., *succini* n. sp., amber, MEUNIER, p. 289, t. c.

Tenthredinidæ.

Atocus, n. g. p. 24, for *A. depressus*, p. 25, pl. i, fig. 5, n. sp., N. America, tertiary, SCUDDER, Bull. U. S. Geol. Surv. No. 93.

LEPIDOPTERA.

Fossils and phylogeny of *Lepidoptera*, GROTE (584).

Barbarothesa n. g. *Libytheinae*, p. 21, for *B. florissanti* n. sp., N. America, tertiary, p. 22, pl. iii, figg. 1-5, SCUDDER, Bull. U. S. Geol. Surv. No. 93.

DIPTERA.

Cecidomyiidae and *Mycetophilidae*, in amber, MEUNIER (918).

Mycetophætus n. g. *Mycetophilidae* of new group *Mycetophætinae*, p. 19, for *M. intermedius* n. sp., N. America, tertiary, p. 20, pl. ii, fig. 5, SCUDDER, Bull. U. S. Geol. Surv. No. 93.

Palæosphagina n. g. (*Syrphidae*) in Baltic amber, MEUNIER, p. 70, Allg. Zeitschr. Ent. vi.

Spheginascia n. g. (*Syrphidae*) in Baltic amber, id. t. c. p. 71.

Paleostrus n. g. *Oestridae*, p. 18, for *P. oligocenus*, n. sp. N. America, tertiary, p. 19, pl. ii, figg. 1, 4, SCUDDER, Bull. U. S. Geol. Surv. No. 93.

Stenoptera n. g. *Cecidomyiidae*, *kiefferi* n. sp., in fossil copal from Africa, MEUNIER, p. 201, Ann. Soc. Bruxelles xxv.

HEMIPTERA.

Hemiptera from Lower Miocene of Salzhausen, BREDDIN (161).

Cicada grandiosa, N. America, tertiary, SCUDDER, p. 15, pl. 1, fig. 3, Bull. U. S. Geol. Surv. No. 93, n. sp.

Pentatoma kinkelini, lower Miocene, Salzhausen, BREDDIN, p. 113, Ber. Senckenberg. Ges. 1901, n. sp.

NEUROPTERA.

Neurorthoptera, *Homothetida*; *Fouquea cambrensis*, carboniferous, S. Wales, ALLEN, Geol. Mag. n. s. viii, p. 65, n. sp.

Notes on fossil *Odonata*, WILLIAMSON (1496).

Stenogomphus n. g. 13, for *S. carletoni*, n. sp., N. America, tertiary, SCUDDER, p. 14, pl. i, fig. 1, Bull. U. S. Geol. Surv. No. 93.

Trichocnemis aliena, N. America, tertiary, SCUDDER, p. 12, pl. i, fig. 2, t. c. No. 93, n. sp.

III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5-81, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

Pterygota and their relations to wings, WALTON (1431).

The last segment of the foot, morphology, DE MEIJERE (906).

Metamorphosis, larva, pupa, nymph, REH (1111).

General work, in Russian, pt. 1, NASSONOW (956).

(A.) COLEOPTERA.

Classification : arrangement in three suborders, *Adephaga*, *Heterophaga*, *Rhynchophora*. The *Heterophaga* consisting of *Staphylinoidea*, *Actinorhabda*, *Heterorhabda*, *Anchistopoda*, KOLBE (774).

The wings and classification, criticism of Kolbe, HORN (637).

Wings of *Coleoptera* : Part 2, *Lamellicornia* to *Oedemeridae*, KEMPERS (716).

Labium, morphology, KADIĆ (699).

Fossil *Coleoptera*, SCUDDER (1253-1255).

Regeneration of legs and antennæ, experiments, TORNIER (1373).

Early stages of European, XAMBEU (1502).

Coleopterology in Austria, historical, GANGLBAUER (602).

CICINDELIDÆ.

[Cf. BLACKBURN (116), DIERCKX (341), HORN (636-639), LESNE (838), SLOANE (1302).

The wings of *Cicindelidæ*, HORN, pp. 14, 15, *Deutsche ent. Zeitschr.* 1901.

Pygidial glands, *Cicindela*, *Derocrania*, DIERCKX (341).

Habits in Sumatra, BOUCHARD, pp. 295, 296, *Bull. Soc. ent. France* 1901.

Species limited in distribution, BAER, p. 256, *Bull. Soc. ent. France* 1901.

Cicindela longilabris, *purpurea*, notes on, HARRIS, pp. 27, 28, *J. N. York Ent. Soc.* ix; *C. vulgaris* var. *n. roguensis*, HARRIS, p. 226, *Canad. Ent.* xxxiii.

C. juno, Africa, *catoptriola*, Australia, p. 355, *moseri*, Timor Laut, p. 356, *bennigsenia*, N. Guinea, p. 357, *virginalis*, Luzon, p. 358, HORN, *Deutsche ent. Zeitschr.* 1901; *C. jungi*, S. Australia, BLACKBURN, p. 15, *Tr. R. Soc. S. Austral.* xxv : n. spp.

Collyris gigas, Laos, LESNE, p. 361, *Bull. Soc. ent. France* 1901; *C. brevipennis*, *subtilesculpta*, India, HORN, p. 44 (636) : n. spp.

Ctenostoma dentifrons, Brazil, HORN, p. 353, *Deutsche ent. Zeitschr.* 1901, n. sp.

Langea n. g. *Euryodini*, p. 353, for *L. euprosopides* n. sp., Peru, p. 354, HORN, t. c.

Myrmecoptera polyhirmoides var. *n. completa*, HORN, p. 123, t. c.

M. marshallana, Umtali, id. l. c., n. sp.

Neocollyris kollari, India, *carinifrons*, China, p. 47, *clavipalpis*, Borneo, p. 50, *apteroides*, Manipur, p. 59, *foveifrons*, Assam, *ampullacea*, Philippines, p. 60, *richieri*, Borneo, p. 62, *plicicollis*, Nilgiris, p. 63, HORN (636), n. spp.

Oxygonia unciifera, *simplipennis* n. n. for *floridula* and *gloriola* Bates, HORN, p. 124, *Deutsche ent. Zeitschr.* 1901.

Tetracha frenchi, *howitti*, characters, synonymy, SLOANE, p. 634; *P. Linn. Soc. N. S. Wales* xxv.

T. greyanus, W. Australia, id. p. 632, t. c., n. sp.

CARABIDÆ.

[Cf. ARROW (32), BLACKBURN (116, 117), BOUCHARD (142), CSIKI (305, 307), DANIEL (321), DIERCKX (341), FAIRMAIRE (427, 429, 430, 432), GANGLBAUER (532), GERMAIN (540, 547), GESTRO (550), GORHAM (569), HAYWARD (606), MÁLLASZ (871), OBST (981), PIC (1049), PONCY (689), PORTA (1080, 1081), REITTER (1124, 1140, 1146, 1147, 1148), RYBINSKI (1195), SAHLBERG (1197), SAINTE-CLAIRE-DEVILLE (1032), SCHAEFFER (1206), SCUDDER (1254), SHARP (1281), TSCHITSCHÉRINE (1384-1397), WEBB (1453), XAMBEU (1502).

Fossil *Carabidæ*, SCUDDER (1254).

Pygidial glands, *Pheropsophus* and other *Carabidæ*, DIERCKX (341).

Abacetus zarudnyi, Persia, TSCHITSCHÉRINE, p. 88, Rev. Russe Ent. i ; *A. tenuimanus*, Soudan, p. 54, *impictus*, India, p. 57, TSCHITSCHÉRINE, Horæ Soc. Ent. Ross. xxxv ; *A. nigrans*, ? S. E. Africa, TSCHITSCHÉRINE, p. 164, t. c. ; *A. volta*, Soudan, p. 39, *decorsei*, Madagascar, p. 41, *mirulus*, Soudan, p. 42, TSCHITSCHÉRINE, Rev. Russe Ent. i : n. spp.

Acinopus : synonymical notes, SEMENOW, pp. 137-141, Rev. Russe Ent. i.

Adelotopus micans, Australia, Tasmania, p. 18, *creberrimus*, Australia, p. 19, BLACKBURN, Tr. R. Soc. S. Austral. xxv : n. spp.

Adrimus virens, Venezuela, TSCHITSCHÉRINE, p. 58, Horæ Soc. ent. Ross. xxxv, n. sp.

Antaretiides of Lacordaire an error, GERMAIN, p. 1047, An. Univ. Chile lxxxiv.

Anthia : synopsis, OBST, pp. 265-298, Arch. Naturg. lxxvii, Beiheft, and lxxvii, p. 279 : for numerous varr. n. see the paper ; the new species are given below ; for subgen. n. see *Odontanthia*, *Calanthia*, *Chilanthia*.

A. variabilis, p. 267, *bella*, *parallela*, p. 268, *kolbei*, p. 269, *dissimilis*, p. 270, *martensi*, p. 272, Africa, OBST, t. c., n. spp.

Apaustodon n. g. near *Oribazus*, p. 4, for *A. segregatus* n. sp., Venezuela, p. 5, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.

Aptinus mudecassus, Madagascar, FAIRMAIRE, p. 132, Rev. Ent. franc. xx, n. sp.

Argutor velox, Samarcand, TSCHITSCHÉRINE, p. 15, Wien. ent. Zeit. xx, n. sp.

Bembidium : synonymy of some N. American, HAYWARD, pp. 156-158, Tr. Amer. ent. Soc. xxvii ; *B. mastersi* referred to *Cillenum*, BLACKBURN, p. 122, Tr. R. Soc. S. Austral. xxv.

B. (Plataphodes) palmeni, Lapland, SAHLBERG, p. 4, Acta Soc. Faun. Fenn. xix, No. 3 ; *B. (Tetediolum) carpetanum*, Spain, SHARP, p. 37, Ent. Mag. xxxvii ; *B. (Principidium) marthæ*, Turkestan, REITTER, p. 177, Deutsche ent. Zeitschr. 1901 ; *B. (Peryphus) postæ*, Siberia, p. 101, *B. (Pekinium* subg. n.) *chinense*, Pekin, p. 102, CSIKI, Zichy Ergebn. ii ; *B. hobarti*, Tasmania, *wattsense*, Victoria, BLACKBURN, Tr. R. Soc. S. Austral. xxv ; *B. æmulum*, p. 156, *oberthuri*, p. 158, N. America, HAYWARD, Tr. Amer. ent. Soc. xxvii : n. spp.

Blechnus corticalis ♂ characters, REITTER, p. 176, Wien. ent. Zeit. xx.

Brachinus truncatulus, p. 130, *tenuicollis*, *perrieri*, p. 131, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx ; *B. ornatus*, Madagascar, FAIRMAIRE, p. 66, Notes Leyden Mus. xxiii : n. spp.

Bradycellus collaris, *harpalinus*, queried, MÜLLER, p. 139, Wien. ent. Zeit. xx.

Calanthia subg. n. of *Anthia*, type *pulcherrima* Bates, OBST, p. 275, Arch. Naturg. lxxvii, Beiheft.

- Callistomimus hovanus*, Madagascar, FAIRMAIRE, p. 116, Rev. Ent. franc. xx, n. sp.
- Carabus*: revision of Chilian, GERMAIN, pp. 627–683, An. Univ. Chile xc, 1 pl.; *C. cancellatus* var. n. *alessiensis*, *C. granulatus* var. n. *miridita*, APFELBECK, p. 121, Soc. ent. xvi; *C. cancellatus* var. n. *sudeticus*, SCHULZ, p. 122, t. c.; *C. obsoletus* var. n., *C. procerulus* a good species, var. n., MÁLLASZ (871); *C. henningi* var. n. *ræschkei*, *sajanicus*, CSIKI, p. 101, Zichy Ergebn. ii; *C. ulrichi*, *italicus*, characters, *C. versicolor*, variation, MÜLLER, p. 137, Wien. ent. Zeit. xx; *C. nemorialis*, egg and larva, ZANG, Allg. Zeitschr. Ent. vi, pp. 273–276, cuts.
- C. ochsenii*, p. 664, *curtus*, p. 682, Chili, GERMAIN, An. Univ. Chile xc, n. spp.
- Cardiostenus cymindiformis*, Turkestan, REITTER, p. 157, pl. iii, fig. 1, Wien. ent. Zeit. xx, n. sp.
- Carterocarus* n. g. for *Pachycarus latreillei*, TSCHITSCHÉRINE, p. 222, Horæ Soc. ent. Ross. xxxv.
- Cephalotypsis* subg. n. of *Harpalus*, q.v.
- Chilanthia* subg. n. of *Anthia*, type *cavernosa* Gerst., OBST, p. 274, Arch. Naturg. lxxvii Beiheft.
- Chlænites spoliatus* var. n. *subpurpureus*, REITTER, p. 65, Deutsche ent. Zeitschr. 1901.
- Chlænus tetrastigma*, p. 107, *perrieri*, p. 108, *alluaudi*, p. 109, *epipleuralis*, *inæqualis*, p. 110, *lineicinctus*, *cupreolus*, p. 111, *densaticollis*, *demissus*, p. 112, *rhysonotus*, *nitidifrons*, p. 113, *strigipennis*, *pulchriceps*, p. 114, *retropictus*, *tenuis*, p. 115, *opaculus*, p. 116, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx: n. spp.
- Clivina denticollis* Sl. (= *eyrensis* Bl.), BLACKBURN, p. 113, Tr. R. Soc. S. Austral. xxv.
- C. simplicifrons*, *globithorax*, p. 105, *pallitibia*, p. 106, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Cnemalobus*, characters and species, GERMAIN, pp. 175–192, An. Univ. Chile cviii.
- C. convexus*, p. 190, *araucanus*, p. 191, id. t. c., n. spp.
- Colpodes cupreotinctus*, p. 119, *callizonatus*, *cribrosus*, p. 120, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Cratognathus luridus*, Madagascar, FAIRMAIRE, p. 118, t. c., n. sp.
- Crepidopterus vickii*, Madagascar, FAIRMAIRE, p. 101, t. c.; *C. cordipennis*, Madagascar, FAIRMAIRE, p. 65, Notes Leyden Mus. xxiii: n. spp.
- Cychropsis* subg. n. of *Cychnus* for *C. sikkimensis* Fairm., below, BOILEAU, p. 350, Bull. Soc. ent. France 1901.
- Cychnus punctipennis*, Herzegowina, REITTER, p. 141, Wien. ent. Zeit. xx; *C. sikkimensis*, India, FAIRMAIRE, p. 265, Bull. Soc. ent. France 1901 (cf. *Cychropsis*); *C. idahoensis*, N. America, WEBB, p. 133, Ent. News Philad. xii: n. spp.
- Cyphosoma sulcatum* (= *latum* Chaud.), TSCHITSCHÉRINE, p. 44, Rev. Russe Ent. i, n. sp.
- Demetrias atricapillus* var. n. *erythrocephalus*, BUYSSON, p. 95, Rev. Ent. franc. xx.
- Diabaticus collaris*, Victoria, *pauper*, Tasmania, BLACKBURN, p. 111, Tr. R. Soc. S. Austral. xxv, n. spp.
- Diabena* n. g. near *Galerita*, for *D. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 94, Bull. Soc. ent. France 1901.
- Ditonus semicylindricus* (= *tenuesculptus* S. and *lucidus* Reitt.), SEMENOW, p. 142, Rev. Russe Ent. i.
- Drimostoma planipenne*, Guinea, TSCHITSCHÉRINE, p. 1, Horæ Soc. ent. Ross. xxxv; *D. sculptile*, Congo, TSCHITSCHÉRINE, p. 49, t. c.: n. spp.
- Drypta curtipennis*, Madagascar, FAIRMAIRE, p. 127, Rev. Ent. franc. xx, n. sp.

- Dyscherus ovulipennis, mandibularis*, Madagascar, FAIRMAIRE, p. 66, Notes Leyden Mus. xxiii, n. spp.
- Ectroma*; characters and components, BLACKBURN, pp. 105-107, Tr. R. Soc. S. Austral. xxv.
- E. elegans*, p. 107, *grave*, p. 108, *fragile*, p. 110, Australia, id. t. c., n. spp.
- Eudromus* and *Homalosoma*, distinctions, TSCHITSCHÉRINE, pp. 38-41, Horæ Soc. ent. Ross. xxxv.
- Euleptus gracilis*, Madagascar, FAIRMAIRE, p. 119, Rev. Ent. franc. xx, n. sp.
- Eumara* n. g., p. 69, near *Pachytheclus*, for *E. maindroni* n. sp., Brazil, p. 71, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- Eriocypas* n. g. *Harpalini*, for *caucasicus* Dej., TSCHITSCHÉRINE, p. 225, t. c.
- Eriophonus* subg. n. of *Harpalus*, for *H. grandiceps* Reitt., TSCHITSCHÉRINE, p. 235, t. c.
- Euprymira* n. n. for *Prymira* Fairm., FAIRMAIRE, p. 122, Rev. Ent. franc. xx.
- Euryscapus lobicollis*, fig. 3, pl., p. 1203, FROGGATT, Agric. Gaz. N. S. W. xii.
- Feronia* to be used not *Platysma*, BOUCHARD, p. 170, Bull. Soc. ent. France 1901; *F. (Argutor) amænula* Boh. to *Metaxys*, p. 160, *trivialis* Boh. to n. g. with characters but not named, p. 161, *F. (Omaseus) nigra* Boh. to *Abacetus*, p. 164, *F. (A.) trivialis* Boh. to *Argutoridius*, *F. insularis* Boh. to *Blennidus*, p. 165, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- Gigadema rugaticolle*, N. W. Australia, BLACKBURN, p. 16, Tr. R. Soc. S. Austral. xxv; *G. dux*, p. 100, *longius, longicolle*, p. 101, Australia, BLACKBURN, t. c. : n. spp.
- Gnathaphanus darwini, multipunctatus*, synonymy, BLACKBURN, p. 20, t. c.
- Haplaner insulicola*, Thursday isld., BLACKBURN, p. 114, t. c. n. sp.
- Haplobothynus* n. g., p. 66, near *Dyschromus*, for *H. gounellei*, n. sp., Brazil, p. 68, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- H. parane*, S. America, TSCHITSCHÉRINE, p. 43, Rev. Russe Ent. i, n. sp.
- Harpalini*: classification, table of genera and subgenera, supplementary of last year's paper*, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, pp. 217-251; Criticism of Reitter's *Harpalini*-tables, with much synonymy (for which refer to the work itself), TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, pp. 125-155; Tabulation of subfamilies, TSCHITSCHÉRINE, pp. 128, 129, t. c.
- Harpalus*: subg. n. cf. *Macrophonus, Eriophonus, Tachyophonus, Cephalotopsis, Typsiharpalus, Microharpalus*.
- H. (Erprinus) stierlini*, Roumania, PONCY, p. 496, Bull. Soc. Bucarest x; *H. eous*, Japan, TSCHITSCHÉRINE, p. 236, Horæ Soc. ent. Ross. xxxv; *H. (Cephalotopsis subg. n.) semenowi*, Tibet, TSCHITSCHÉRINE, p. 238, t. c. : n. spp.
- Homalosoma*, cf. *Eudromus*.
- H. hecate*, Australia, TSCHITSCHÉRINE, p. 13, Horæ Soc. ent. Ross. xxxv, n. sp.
- Hypogium* subg. n. cf. *Platysma*.
- Lacordairia*, characters and composition, BLACKBURN, p. 115, Tr. R. Soc. S. Austral. xxv.
- Lebia syriaca*, Damascus, PIC, p. 57, Echange xvii; *L. semicyanea, stigmula*, Madagascar, FAIRMAIRE, p. 126, Rev. Ent. franc. xxv : n. spp.
- Lebioderus ritsemæ*, Sumatra, GESTRO, p. 15, Notes Leyden Mus. xxiii, n. sp.

* On p. 117 of Zool. Rec. 1900 this paper is alluded to with SEMENOW as author instead of TSCHITSCHÉRINE.

- Leistus punctatus* and *spinibarbis* united, MÜLLER, p. 138, Wien. ent. Zeit. xx.
Lestignathus minor referred to *Hormacrus*, BLACKBURN, p. 115, Tr. R. Soc. S. Austral. xxv.
- Liocellus* n. g. type *Harpalus nigrinus* Dej., TSCHITSCHÉRINE, p. 247, Horæ Soc. ent. Soc. xxxv.
- Lionychus orientalis*, Asia Minor, DANIEL, p. 139, Soc. ent. xv, n. sp.
- Liopasa* n. g. near *Cyphosoma*, p. 6, for *L. crepera*, n. sp., Australia, p. 8, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- Lobobrachus alternans*, Brazil, TSCHITSCHÉRINE, pp. 2 & 69, t. c., n. sp.
- Loxandrus maindroni*, p. 60, *guttula*, p. 62, *notula*, *modicus*, p. 64, Venezuela, TSCHITSCHÉRINE, t. c. : n. spp.
- Macrochilus cribrarius*, Madagascar, FAIRMAIRE, p. 121, Rev. Ent. franc. xx, n. sp.
- Macrophonus* subg. n. of *Harpalus*, for *H. oblongus*, TSCHITSCHÉRINE, p. 233, Horæ Soc. ent. Ross. xxxv.
- Mareyas lampronotus*, Brazil, TSCHITSCHÉRINE, pp. 3 & 69, t. c., n. sp.
- Masoreus quadricollis*, Madagascar, FAIRMAIRE, p. 121, Rev. Ent. franc. xx, n. sp.
- Microharpalus* subg. n. of *Harpalus* for *H. nanulus* Tsch., TSCHITSCHÉRINE, p. 241, Horæ Soc. ent. Ross. xxxv.
- Microzæna* n. g. *Ozenides*, p. 106, for *M. madecassa*, n. sp., Madagascar, p. 107, FAIRMAIRE, Rev. Ent. franc. xx.
- Mormolyce phyllodes*, habits, SHELFORD, p. 690, Rep. Brit. Ass. 1901.
- Nebria livida* var. n. *sibirica*, CSIKI, p. 101, Zichy Ergebn. ii.
- N. uralensis*, Orenburg, GLASOUNOW, p. 20, Rev. Russe Ent. i, n. sp.
- Nycteis tetrastigma*, *latiuscula*, p. 122, *posticalis*, *unicolor*, *scapulata*, p. 123, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Nyctemorphia* n. g. near *Nycteis*, for *N. miltomera*, n. sp., Madagascar, FAIRMAIRE, p. 124, t. c.
- Odontanthia* subg. n. of *Anthia*, type *calida* Har., OBST, p. 275, Arch. Naturg. lxvii Beiheft.
- Odontocarus propagator*, Buchara, REITTER, p. 113, Wien. ent. Zeit. xx, n. sp.
- Oreolyperus* subg. n. cf. *Platysma*.
- Orinocarabus*: the races and varieties, variation of ♂ genitalia, GANGLBAUER (532); *O. fairmairei* var. n. *omensis*, BORN, p. 522, Verh. Ges. Wien li.
- Paranurus* n. g. p. 9, type *Trichosternus dilaticeps* Chaud. with *P. petri*, n. sp., Torres Straits?, p. 12, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- Paraphonus vigil*?, Syria, TSCHITSCHÉRINE, p. 140, t. c., n. sp.
- Pekinium* subg. n. cf. *Bembidium*.
- Pelagophilus* n. g. for *Dichirotrichus punicus*, TSCHITSCHÉRINE, pp. 217 & 249, Horæ Soc. ent. Ross. xxxv.
- Penthophonus antonowi*, Transcaspiian, TSCHITSCHÉRINE, p. 227, t. c., n. sp.
- Percus* and *Abacopercus*, revision, PORTA, pp. 105–131, Bull. Soc. ent. Ital. xxxiii.
- P. ellipticus*, Sardinia, id. p. 129, t. c., n. sp.
- Phenoraphis* subg. n. cf. *Platysma*.
- Pheropsophus*: in addition to the new species mentioned below, ARROW makes synonymical remarks, Tr. ent. Soc. London 1901, pp. 193–206.
- P. dimidiatus*, pl. ix, fig. 8, p. 194, *abbreviatus*, fig. 5, p. 195, *exiguus*, *pallidepunctatus*, p. 196, *gracilis*, fig. 6, *livingstoni*, fig. 9, p. 197, *nyasæ*, p. 199, *congoensis*, fig. 7, *recticollis*, p. 200, *tristis*, Africa, *arabicus*, Arabia, p. 201, *nigricollis*, fig. 2, p. 203, *curtus*, fig. 3, p. 204, India, *heathi*, Burma, fig. 1, p. 205, *perroti*, Madagascar, p. 206, fig. 4, ARROW, Tr. ent. Soc. London 1901; *P. fasciatocollis*, p. 129, *rufimembra*, p. 130, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx : n. spp.

- Phlaeocarabus farinae*, Centr. Australia, BLACKBURN, p. 112, Tr. R. Soc. S. Austral. xxv, n. sp.
- Platysma* (*Holcaspis*) *pantomelas*=(*sylvaticus*), TSCHITSCHÉRINE, p. 47, Rev. Russe Ent. i; *P. vancouveriensis*, habitat Chili, TSCHITSCHÉRINE, p. 72, Horæ Soc. ent. Ross. xxxv.
- Platysma* (*Pterostichus*) *lombardus* (Dan.), Italy, TSCHITSCHÉRINE, p. 257, Rev. Russe Ent. i; *P. (Oreolyperus* subg. n.) *korolkovi*, Caucasus, TSCHITSCHÉRINE, p. 10, t. c.; *P. (Tapinopterus)* *insulicola*, Turkey, p. 247, *P. (Hypogium* subg. n., p. 48) *albanicum*, Albania, p. 49, TSCHITSCHÉRINE, Abeille xxx; *P. (Pterostichus)* *raptor*, p. 239, *compar*, *scurra*, p. 242, *prædo*, p. 244, Korea, *orion*, E. Siberia, p. 246, *P. (Phænoraphis* subg. n.) *acuspina*, Korea, p. 248, TSCHITSCHÉRINE, Rev. Russe Ent. i; *P. (Chalcochrous)* *hera*, Cape of Good Hope, TSCHITSCHÉRINE, p. 15, Horæ Soc. ent. Ross. xxxv; *P. (Cophosomorphia)* *sinuatangulum*, Africa, p. 45, *P. (Chlænoidius)* *caledonicum*, New Caledonia, p. 46, TSCHITSCHÉRINE, Rev. Russe Ent. i : n. spp.
- Promecoderus sloanei*, W. Australia, BLACKBURN, p. 19, Tr. R. Soc. S. Austral. xxv, n. sp.
- Pseudoderus melanochrus*, p. 26, *gonioderus*, p. 27, Turkestan, TSCHITSCHÉRINE, Wien. ent. Zeit. xx, n. spp.
- Pterostichus externepunctatus* var. n. *glesianus*, *prevosti* var. n. *cupreonitens*, VITURAT, p. 75, Échange xvii; *Pt. anthracinus*, *biimpressus*, distinctions, MÜLLER, p. 139, Wien. ent. Zeit. xx; *Pt. biimpressus*, distribution, REITTER, p. 176, t. c.
- Pt. lombardus*, Italy, DANIEL, p. 139, Soc. ent. xv, n. sp.
- Scarites striolifrons*, *anguliceps*, p. 102, *externus*, *curtipennis*, p. 103, *perrieri*, p. 104, *mediocris*, p. 105, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Serrimargo* and *Peripristus*, characters, BOUCHARD, pp. 90, 91, Bull. Soc. ent. France 1901.
- S. grouvellei*, Sumatra, id. p. 90, t. c., n. sp.
- Silphomorpha rufoguttata* referred to *Adelotopus*, BLACKBURN, p. 113, Tr. R. Soc. S. Austral. xxv.
- S. difficilis*, N. S. Wales, BLACKBURN, p. 17, t. c., n. sp.
- Singilis hirtipennis*, Syria, PIC, p. 89, Échange xvii, n. sp.
- Sphinctodera* n. g. near *Casmonia*, for *S. perrieri*, n. sp., Madagascar, FAIRMAIRE, p. 128, Rev. Ent. franc. xx.
- Stenolophus dingo*=(*Lecan. obscurus* Bl.), BLACKBURN, p. 115, Tr. R. Soc. S. Austral. xxv; *S. biplagiatus* Boh. referred to *Acupalpus*, TSCHITSCHÉRINE, p. 167, Horæ Soc. ent. Ross. xxxv.
- S. plagiatus*, Britain, GORHAM, p. 25, Ann. Scott. Nat. Hist. 1901, n. sp.
- Stomonaxellus* n. g. near *Drimostoma*, p. 51, for *S. flicornis*, n. sp., India, p. 52, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.
- Storthodontus tenuepunctatus*, Madagascar, FAIRMAIRE, p. 101, Rev. Ent. franc. xx; *S. decorsii*, Madagascar, FAIRMAIRE, p. 65, Notes Leyden Mus. xxiii : n. spp.
- Tachyphonus* subg. n. of *Harpalus*, for *H. vigil* etc., TSCHITSCHÉRINE, p. 235, Horæ Soc. ent. Ross. xxxv.
- Tachys transversa*collis=(*adelaidæ* Bl.), BLACKBURN, p. 122, Tr. R. Soc. S. Austral. xxv.
- Terraleus brevior*, Madagascar, FAIRMAIRE, p. 117, Rev. Ent. franc. xx, n. sp.
- Thenarotes minor*, *discoidalis*, characters, *T. metallicus* referred to *Notophilus*, BLACKBURN, p. 115, Tr. R. Soc. S. Austral. xxv.
- Trechodes* n. g. for *Bembidium secalioides* Bl. and *T. gibbipennis* n. sp., Tasmania, BLACKBURN, t. c.
- Trechus*, the North American, SCHAEFFER, Bull. Amer. Mus. xiv, pp. 209-213, pl. xxviii.

- T. (Anophthalmus) burjasi*, Alpes maritimes, SAINTE-CLAIRE-DEVILLE, p. 53, Abeille xxx; *T. fontinalis*, Carpathians, RYBIŃSKI, p. 66, Sprawozd. Kom. Krajo xxv, Cz. II; *T. leonhardi*, Herzegowina, REITTER, p. 143, Wien. ent. Zeit. xx; *T. (Anophthalmus) mallaszi*, Hungary, CSIKI, p. 486, Termes. Füzetek xxiv; *T. subornatellus*, p. 117, *solidior*, Australia, *tasmaniae*, p. 118, Tasmania, BLACKBURN, Tr. R. Soc. S. Austral. xxv; *T. carolineæ*, N. America, SCHAEFFER, p. 212, pl. xxviii, fig. 5, Bull. Amer. Mus. xiv : n. spp.
- Trigonothops longiplaga*, *pacifica*, *flavofasciata*, characters, BLACKBURN, p. 104, Tr. R. Soc. S. Austral. xxv : n. spp.
- Tropidocerus affinis*, Soudan, TSCHITSCHÉRINE, p. 57, Rev. Russe Ent. i, n. sp.
- Typsiarpalus* subg. n. of *Harpalus*, for *H. punctatipennis* Ramb., TSCHITSCHÉRINE, p. 240, Horæ Soc. ent. Ross. xxv.
- Xanthophea concinna*, p. 102, *cylindricollis*, p. 103, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxv : n. spp.
- Xatis* n. g. near *Haplopeza*, for *X. nigripes* n. sp., Madagascar, FAIRMAIRE, p. 125, Rev. Ent. franc. xx.
- Zabrus tenebrioides*, life history, PORTA, pp. 177–182, Bull. Soc. ent. Ital. xxxiii.
- Zuphium impressicollis*, Madagascar, FAIRMAIRE, p. 128, Rev. Ent. franc. xx, n. sp.

HALIPLIDÆ.

- Haliplus fulvus* var. n. *carlittensis*, RÉGIMBART, p. 323, Bull. Soc. ent. France 1901; *H. fulvicollis*, *jakowlewi*, *schaumi*, synonymy, SÉMÉNOW, pp. 144, 145, Rev. Russe Ent. i; *H. laminatus* var. n. *punctulatus*, PENECKE, p. 11, Wien. ent. Zeit. xx.

DYTISCIDÆ.

- [Cf. BLACKBURN (117), BORDAS (135), CSIKI (305), MEINERT (909), RÉGIMBART (1109, 1110), SAHLBERG (1197), SCUDDER (1254), SHARP (1363), SOPP (1317).]

Pelobius and *Dytiscidæ* larvæ, account of their structure, and bearing on classification, 48 species; *Noterinae* treated as a separate subfamily, MEINERT (909).

Fossil *Dytiscidæ*, SCUDDER (1254).

The alimentary canal, BORDAS (135).

Celambus puncticeps, Germany, SEIDLITZ, Miscell. ent. ix, p. 11, n. sp.

Hydroporus (Deronectes) brannani characters, *D. carinatus* var. n. *fabressei*, p. 324, *H. halensis* var. n. *ibericus*, p. 325, *septentrionalis* var. n. *helveticus*, *devillei*, *H. pyrenæus*, note on, RÉGIMBART, p. 326, Bull. Soc. ent. France 1901; *H. collaris* Hope, referred to *Antiporus*, BLACKBURN, p. 124, Tr. R. Soc. S. Austral. xxv.

H. libanus, Lebanon, RÉGIMBART, p. 101, Bull. Soc. ent. France 1901, n. sp.

Ilybius chinensis, Pekin, CSIKI, Zichy Ergebn. ii, n. sp.

Lancetes thesææ, Bolivia, SHARP, p. 478, pl. vii, fig. 1, Berlin. ent. Zeitschr. xlv, n. sp.

GYRINIDÆ.

Dineutes gouldi, characters, *australis* and *rufipes* queried as one, BLACKBURN, p. 128, Tr. R. Soc. S. Austral. xxv.

Macrogyrus fortissimus, p. 126, *opacior*, p. 127, Australia, BLACKBURN, t. c., n. spp.

HYDROPHILIDÆ.

[Cf. ABEILLE (1), BLACKBURN (117), ENDERLEIN (417), GANGLBAUER (530), RÉGIMBART (1108), REITTER (1123), RENGEL (1155), SAHLBERG (1197), SCUDDER (1254).]

Fossil *Hydrophilidæ*, SCUDDER (1254).

Anacæna immatura, France, ABEILLE, p. 59, Echange xvii, n. sp.

Dibolocelus n. g. for part of *Hydrophilus* (or *Stethoxus*), RÉGIMBART, p. 192, Ann. Soc. ent. France lxi.

D. masculinus, Argentina, p. 223, *oberthuri*, Ecuador, p. 226, *gibbosus*, Brazil, p. 226, id. t. c., n. spp.

Helophorus viridicollis Steph. = (*æneipennis* Thoms.) p. 318, *H. confrater* var. n. *knotheri*, p. 319, GANGLBAUER, Verh. Ges. Wien li.

H. (Empleurus) crinitus, Audo, *H. (Atractohelophorus) dalmatinus*, Montenegro, p. 312, *fauxeli*, Simplon, p. 314, *armeniacus*, Armenia, *longipennis*, Turkestan, p. 315, *altaicus*, Altai, p. 316, *pictus*, Buchara, p. 317, *H. kerini*, Transcaucasus, p. 318, *zoppæ*, Siebenbürgen, p. 319, GANGLBAUER, t. c., n. spp.

Hydræna (Pothhydræna) paganettii, p. 322, *H. kaufmanni*, p. 323, *ambigua*, *H. (Hænydra) devillei*, p. 324, *bicuspidata*, *dalmatina*, p. 327, *hispanica*, *italica*, p. 328, *bensæ*, p. 330, *schuleri*, p. 331, Europe, GANGLBAUER, t. c., n. spp.

Hydrophilus piceus in confinement, longevity, POUJADE, p. 229, Bull. Soc. ent. France 1901; *H. piceus* food-habits of larva and imago, RENGEL (1155).

H. scissipalpis, Centr. Australia, BLACKBURN, p. 128, Tr. R. Soc. S. Austral. xxv, n. sp.

Meropathus n. g. near *Helophorus*, p. 121, for *M. chuni* n. sp., Kerguelen island, p. 122, cuts, ENDERLEIN, Zool. Anz. xxiv.

Ochthebius viridis var. n. *fallaciosus* and *mulleri*, GANGLBAUER, p. 321, Verh. Ges. Wien li.

O. (Henicocerus) montenegrinus, *O. peisonis*, Europe, GANGLBAUER, p. 320, t. c.; *O. levissculptus*, p. 65, *atricapillus*, p. 66, Buchara, REITTER, Deutsche ent. Zeitschr. 1901 : n. spp.

Philydrus hamifer, Vienna, GANGLBAUER, p. 332, Verh. Ges. Wien li, n. sp. *Sphæridium scarabæoides* in N. America, PEARSALL, p. 158, & HOUGHTON, p. 209, Ent. News Philad. xii.

Stethoxus; revision, RÉGIMBART, pp. 188-222, Ann. Soc. ent. France lxx.

S. lorai, N. Guinea, p. 202, *macronyx*, Australia, p. 208, *unguicularis* hab. ♀, p. 213, *foveolatus*, p. 217, *bedeli*, p. 219, S. America, RÉGIMBART, t. c., n. spp.

STAPHYLINIDÆ.

[Cf. ABEILLE (1), BERNHAUER (93-99), CSIKI (305), DIERCKX (341), EICHELBAUM (308), FAIRMAIRE (433), FALL (434), FAUVEL (436-440, 442, 443), GANGLBAUER (531), LUZE (863-866), PENECKE (1006), PEYERHIMOFF (1031, 1032), PONSSELLE (1076), REITTER (1122, 1123, 1148), SAHLBERG (1196, 1197), SAINTE-CLAIRE-DEVILLE (1199), SCUDDER (1254), SILVESTRI (1291), WASMANN (1448, 1449), XAMBEU (1502).]

First portion of a study of palæarctic Staphylinidæ, consisting of table of the genera of *Aleocharini*, and revision of the species of *Aleochara*, BERNHAUER, pp. 430-506, Verh. Ges. Wien li.

Revision of palæarctic *Bolitobiini*, LUZE, pp. 662-746, Verh. Ges. Wien li.

Fossil *Staphylinidæ*, SCUDDER (1254).

Pygidial glands, DIERCKX (341).

- Acanthoglossa* (*Cephus*) *punica*, Tunis, FAUVEL, p. 250, Rev. Ent. franc. xx, n. sp.
- Aleochara*; revision of palaearctic with n. subgenn. *Isochara*, *Megalogastrica*, *Ophiochara*, BERNHAUER, Verh. Ges. Wien li, pp. 430–506; *A. curtula* var. n. *bugnioni*, FAUVEL, p. 90, Rev. Ent. franc. xx; *A. capitata*, characters, REITTER, p. 67, Deutsche ent. Zeitschr. 1901.
- A. (Ceranota) penicillata*, Provence, PEYERIMHOFF, p. 347, Bull. Soc. ent. France 1901; *A. pulchra*, Turkestan, p. 479, *strasseri*, Bosnia, p. 492, *ganglbaueri*, Tyrol, p. 493, BERNHAUER, Verh. Ges. Wien li; *A. colorata*, p. 366, *fortepunctata*, p. 367, *funesta*, p. 368, Africa, *opacula*, Amazons, p. 369, *angusticollis*, Africa, p. 370, *speculicollis*, p. 371, *gracilicornis*, p. 372, N. America, BERNHAUER, Ent. Zeit. Stettin lxii : n. spp.
- Amblyopinus gahani*, La Plata, FAUVEL, p. 6, Rev. Ent. franc. xx, n. sp.
- Anthobium miricolle*, Alpes maritimes, SAINTE-CLAIRE-DEVILLE, p. 1, Rev. Ent. franc. xx; *A. hirtellum*, Japan, FAUVEL, p. 2, Rev. Ent. franc. xx and Bull. Mus. Paris 1901, p. 63 : n. spp.
- Apteronina* n. g. *Aleocharini*, p. 146, for *A. schmitti* n. sp., Colorado, p. 147, WASMANN, Wien. ent. Zeit. xx.
- Astenus bucharensis*, Buchara, BERNHAUER, p. 246, Deutsche ent. Zeitschr. 1901, n. sp.
- Atemeles paradoxus*, habits, PONSELLE, p. 360, Bull. Soc. ent. France 1901.
- Atheta subplana*, ♀, SAHLBERG, p. 168, Ent. Tidskr. xxii; *A. divisa*, *amicula*, larvæ, EICHELBAUM, Zool. Jahrb. Syst. xiv, pp. 521–531, cuts.
- A. (Dimetrota) comitissa*, Alpes maritimes, *A. (Hydrosmectina) bernhaueri*, Basses-Alpes, PEYERIMHOFF, p. 54, Abeille xxx; *A. (Thinobæna) cephalotes*, Genoa, BERNHAUER, p. 651, Verh. Ges. Wien li; *A. (Oreostiba) oreophila*, p. 108, *A. (Dimetrota) altaica*, p. 109, *A. (Xenota) lederi*, p. 110, *A. (Metaxya) banghaasi*, p. 111, *difficulta*, p. 112, *A. (Phylhygra) lioglutoides*, *A. (Tachynota* subg. n.) *thinodromoides*, p. 113, Central Asia, BERNHAUER, Verh. Ges. Wien li; *A. (Homalota) madagascariensis*, p. 161, *insularis*, p. 162, *H. (Epipeda) brodschildi*, p. 163, Madagascar, BERNHAUER, Deutsche ent. Zeitschr. 1901; *A. colombica*, Colombia, FAUVEL, p. 88, Rev. Ent. franc. xx : n. spp.
- Belonuchus bugnioni*, Martinique, FAUVEL, p. 86, t. c., n. sp.
- Bledius poppini*, N. Russia, BERNHAUER, p. 248, Deutsche ent. Zeitschr. 1901; *B. madagascariensis*, Madagascar, BERNHAUER, p. 170, t. c.; *B. microcephalus*, Colombia, FAUVEL, p. 72, Rev. Ent. franc. xx : n. spp.
- Bolitobius limbifer*, p. 3, *melanurus*, p. 4, Japan, FAUVEL, Rev. Ent. franc. xx and Bull. Mus. Paris 1901, pp. 64, 65; *B. puncticeps*, p. 733, *indubius*, p. 734, *imitator*, p. 735, East Siberia, LUZE, Verh. Ges. Wien li : n. spp.
- Bryoporus caucasicus*, p. 723, *abdominalis*, p. 724, Caucasus, LUZE, t. c., n. spp.
- Cephus abeillei*, Jaffa, BERNHAUER, p. 245, Deutsche ent. Zeitschr. 1901, n. sp.
- Cryptobium muneti*, p. 80, *steinheili*, *bugnioni*, p. 81, Colombia, FAUVEL, Rev. Ent. franc. xx, n. spp.
- Decusa*, characters, WASMANN, p. 249, Canad. Ent. xxxiii.
- Dinaræa diffusa*, Colombia, FAUVEL, p. 89, Rev. Ent. franc. xx, n. sp.
- Dinardilla* n. g. *Aleocharini*, p. 145, for *D. liometopi* n. sp., Colorado, WASMANN, p. 145, Wien. ent. Zeit. xx.
- Drusilla (Astilbus) alutacea*, Buchara, REITTER, p. 67, Deutsche ent. Zeitschr. 1901, n. sp.
- Eleusis howa*, p. 170, *scapularis*, *acuticollis*, *inermis*, p. 171, *obscura*, p. 172, Madagascar, BERNHAUER, Deutsche ent. Zeitschr. 1901, n. spp.
- Erchomus tereticornis*, p. 87, *tenuipunctatus*, p. 88, Colombia, FAUVEL, Rev. Ent. franc. xx, n. spp.

- Euliasus diabolicus*, Madagascar, BERNHAUER, p. 167, Deutsche ent. Zeitschr. 1901, n. sp.
- Falagria scutellaris*, Colombia, FAUVEL, p. 89, Rev. Ent. franc. xx, n. sp.
- Geodromicus asiaticus*, p. 249, *bodemeyeri*, p. 250, Asia Minor, BERNHAUER, Deutsche ent. Zeitschr. 1901, n. spp.
- Geostiba bisulcata*, Algeria, FAUVEL, p. 253, Rev. Ent. franc. xx, n. sp.
- Gyrophana harmandi*, Japan, FAUVEL, p. 5, t. c. and Bull. Mus. Paris 1901, p. 65, n. sp.
- Hasumius suturalis*, Centr. Africa, FAIRMAIRE, p. 279, Bull. Soc. ent. France 1901, n. sp.
- Holotrochus pubiventris*, Venezuela, FAUVEL, p. 73, Rev. Ent. franc. xx, n. sp.
- Homalota divisa* var. n. *blatchi*, ELLIS, p. 250, Ent. Rec. xiii.
- Homoeusa* = (*Soliusa* and *Myrmobiota* Casey), WASMANN, p. 250, Canad. Ent. xxxiii: denied by CASEY, t. c. p. 313.
- Ilyobates bergi*, Patagonia, FAUVEL, p. 282, Comun. Mus. Buenos Aires i, n. sp.
- Isochara* subg. n. of *Alcochara*, BERNHAUER, pp. 440 & 461, Verh. Ges. Wien li.
- Lamprinodes* n. g., p. 181, for part of *Lamprinus*, with *L. hammarstroemi* n. sp., p. 182, Finland, LUZE, Verh. Ges. Wien li.
- Lathrobium (Glyptomerus) pinkeri*, Tyrol, GANGLBAUER, p. 390, Verh. Ges. Wien li; *L. semirufulum*, p. 242, *banghaasi*, p. 243, Turkestan, BERNHAUER, Deutsche ent. Zeitschr. 1901: n. spp.
- Leptogenius virginicus*, N. America, FALL, p. 304, Tr. Amer. ent. Soc. xxvii, n. sp.
- Leptusa sharpi* n. n. for *impressicollis* Shp. nec Motsch., FAUVEL, p. 5, Rev. Ent. franc. xx and p. 66, Bull. Mus. Paris 1901.
- L. (Pisalia) oreophila*, Styria, PENECKE, p. 12, Wien. ent. Zeit. xx, n. sp.
- Lesteva binotata*, Turkestan, REITTER, p. 48, Deutsche ent. Zeitschr. 1901, n. sp.
- Lispinus colossus*, Madagascar, BERNHAUER, p. 172, Deutsche ent. Zeitschr. 1901, n. sp.
- Medon bucharicus*, Bucharu, p. 244, *picinus*, Turkestan, p. 245, BERNHAUER, t. c.; *M. (Scioporus) nitellus*, Colombia, FAUVEL, p. 79, Rev. Ent. franc. xx: n. spp.
- Megalogastris* subg. n. of *Aleochara*, BERNHAUER, pp. 438 & 488, Verh. Ges. Wien li.
- Mycetoporus major*, Caucasus, p. 673, *altaicus*, Altai, p. 676, *gracilis*, S. centr. Europe, p. 678, *flavicornis*, N. Europe, p. 681, *bosnicus*, Bosnia, p. 683, *dalmatinus*, Dalmatia, p. 685, *completus*, Caucasus, p. 687, *ganglbaueri*, Tyrol, *swaneticus*, Caucasus, p. 692, *insulanus*, Corfu, p. 693, *inarius*, Lapland, p. 625, *blandus*, Lenkoran, p. 697, *ambiguus*, Europe, p. 699, *nobilis*, S. Europe, p. 703, *lipiputanus*, Centr. Asia, p. 705, *corpulentus*, p. 707, *wingelmuelleri*, p. 708, *montanus*, p. 711, Centr. Europe, *heeri*, E. Siberia, p. 712, *pluripunctus*, E. Siberia, p. 717, LUZE, Verh. Ges. Wien li, n. spp.
- Myrmedonia* (?) *Myrmocia* *libanensis*, PIC, p. 81, Echange xvii, n. sp.
- Myrmocia lauta*, Casey sub *Nototaphra* = (*picta* Wasm.), WASMANN, p. 252, Canad. Ent. xxxiii.
- Ocalea pulcherrima*, Centr. Asia, BERNHAUER, p. 106, Verh. Ges. Wien li, n. sp.
- Ocyusa mirabilis*, p. 107, *grossa*, p. 108, Centr. Asia, BERNHAUER, p. 108, t. c., n. spp.
- Onalium madegassa*, Madagascar, BERNHAUER, p. 173, Deutsche ent. Zeitschr. 1901, n. sp.
- Ophiochara* subg. n. of *Aleochara*, BERNHAUER, pp. 439 and 483, Verh. Ges. Wien li.

- Ophites bugnioni*, Colombia, FAUVEL, p. 80, Rev. Ent. franc. xx, n. sp.
Osorius asymmetricus, S. America, FAUVEL, p. 73, t. c., n. sp.
Oxygoda japonica, Japan, FAUVEL, p. 5, Rev. Ent. franc. xx, and Bull. Mus. Paris 1901, p. 66; *O. termitophila*, Madagascar, BERNHAUER, p. 252, Deutsche ent. Zeitschr. 1901 : n. spp.
Oxypodinus n. g. near *Polylobus*, p. 174, for *O. anxius*, p. 175, *lucidus*, p. 176, n. spp., Madagascar, BERNHAUER, t. c.
Oxyporus crocatus, Japan, FAUVEL, p. 2, Rev. Ent. franc. xx and Bull. Mus. Paris 1901, p. 64, n. sp.
Pæderus brasiliensis, habits, FAUVEL, p. 77, Rev. Ent. franc. xx.
P. longiceps, Margelan, BERNHAUER, p. 247, Deutsche ent. Zeitschr. 1901, n. sp.
Paraleptusa n. g. *Bolitocharini*, for *Leptusa helitasi* P., PEYERIMHOFF, p. 55, Abeille xxx.
Parocalea n. g. for *Calodera baicalica* Epp., BERNHAUER, pp. 431 and 435, Verh. Ges. Wien li.
Philonthus lepidus var. n. *mongolicus*, CSIKI, p. 104, Zichy Ergebn. ii; *P. quisquiliarius* var. n. *rubrosuturatus*, BERNHAUER, p. 166, Deutsche ent. Zeitschr. 1901.
P. undæ, Graz, PENECKE, p. 13, Wien. ent. Zeit. xx; *P. ornatipennis*, Irkutsk, REITTER, p. 158, pl. iii, fig. 2, Wien. ent. Zeit. xx; *P. bernhaueri*, Pekin, CSIKI, p. 104, Zichy Ergebn. ii; *P. plasoni*, Madagascar, BERNHAUER, p. 166, Deutsche ent. Zeitschr. 1901 : n. spp.
Phloeocharis gigantea, Centr. Asia, BERNHAUER, p. 114, Verh. Ges. Wien li, n. sp.
Pinophilus trapezicollis, Colombia, FAUVEL, p. 76, Rev. Ent. franc. xx, n. sp.
Plathystethus volgensis, Russia, CSIKI, p. 105, Zichy Ergebn. ii, n. sp.
Plochionocerus dalmasi, Colombia, FAUVEL, p. 84, Rev. Ent. franc. xx, n. sp.
Pyroglossa n. g. for *Ocyusa grossa* and *mirabilis*, BERNHAUER, p. 431, Verh. Ges. Wien li.
P. opaca, Altai, BERNHAUER, p. 241, Deutsche ent. Zeitschr. 1901, n. sp.
Quedius rubripennis, Caucasus, BERNHAUER, p. 652, Verh. Ges. Wien li, n. sp.
Sciocharis sharpi n. n. for *humilis* Shp. nec Erichson, FAUVEL, p. 78, Rev. Ent. franc. xx.
Scopeus kraatzi, Madagascar, BERNHAUER, p. 168, Deutsche ent. Zeitschr. 1901, n. sp.
Staphylinus sharpi n. n. for *subæneus* Sharp nec Roth, FAUVEL, p. 5, Rev. Ent. franc. xx and p. 66, Bull. Mus. Paris 1901.
Stenus (Hemistenus) audax, Finland, SAHLBERG, p. 16, Acta Soc. Faun. Fenn. xix, No. 3; *S. (Nestus) phyllobates*, Styria, PENECKE, p. 15, Wien. ent. Zeit. xx; *S. pekinensis*, China, CSIKI, p. 104, Zichy Ergebn. ii; *S. auliensis*, Turkestan, BERNHAUER, Deutsche ent. Zeitschr. 1901, p. 247; *S. decoloripes*, *denticollis*, S. America, FAUVEL, p. 75, Rev. Ent. franc. xx : n. spp.
Sterculia; synonymy, FAUVEL, pp. 251, 252, t. c.
Stiliculus opacicollis, Madagascar, BERNHAUER, p. 168, Deutsche ent. Zeitschr. 1901, n. sp.
Tachinus bernhaueri, Altai, LUZE, p. 389, Verh. Ges. Wien li; *T. muensteri*, Norway, LUZE, p. 614, t. c.; *T. mongolicus*, Chara-gol, CSIKI, p. 103, Zichy Ergebn. ii; *T. luzei*, Turkestan, BERNHAUER, p. 242, Deutsche ent. Zeitschr. 1901 : n. spp.
Tachynota subg. n., cf. *Atheta*.
Tachyporus; revision of palaearctic, LUZE, pp. 146-179, Verh. Ges. Wien li; *T. hypnorum* var. n. *atratus*, CSIKI, p. 103, Zichy Ergebn. ii.
T. compressicornis, Caucasus, p. 153, *nigrinus*, Centr. Asia, p. 154, *imitator*, E. Siberia, p. 155, *austriacus*, Vienna, p. 156, *bernhaueri*, Mongolia,

- ganglbaueri*, E. Siberia, p. 158, *sahlbergi*, Turkestan, *italicus*, Italy, p. 160, *skalitzkyi*, Siberia, p. 162, *duplex*, Mongolia, *microcephalus*, p. 163, *mysticus*, p. 164, E. Siberia, *reitteri*, Centr. Asia, p. 170, *flavifrons*, Baikal, p. 172, *laticollis*, Caucasus, *cuneus*, Centr. Asia, p. 175, *matthewi*, Taschkent, *lederi*, p. 178, *convexus*, p. 179, Caucasus, LUZE, Verh. Ges. Wien li, n. spp.
- Termitoicetus* n. g. near *Xenogaster*, p. 5, for *T. anastrephoproctus* n. sp., p. 6, S. America with *Eutermes*, SILVESTRI, Boll. Mus. Torino xvi, No. 398.
- Termitosius* n. g., p. 8, for *T. pauciseta*, p. 9, n. sp., Paraguay with *Eutermes*, SILVESTRI, t. c.
- Termitothymus* n. g. near *Abroteles*, p. 1, for *T. philaterus* n. sp., S. America with *Eutermes*, p. 2, SILVESTRI, t. c.
- Termitozophilus* n. g., p. 7, for *T. latus* n. sp., Paraguay with *Cornitermes*, p. 8, SILVESTRI, t. c.
- Timeparthenus* n. g., p. 10, for *T. regius* n. sp., p. 11, S. America with *Eutermes*, SILVESTRI, t. c.
- Tomozelia* n. g. near *Leptusa*, p. 164, for *T. tropica* n. sp., Madagascar, p. 165, BERNHAUER, Deutsche ent. Zeitschr. 1901.
- Triochara* subg. n. for *Alcochara trisulcatu* Weise, BERNHAUER, p. 373, Ent. Zeit. Stettin lxii.
- Trogophlæus ganglbaueri*, p. 653, *augusta*, p. 654, Austria, BERNHAUER, Verh. Ges. Wien li; *T. tener*, Turkestan, BERNHAUER, p. 249, Deutsche ent. Zeitschr. 1901 : n. spp.
- Xantholinus linearis* and *longiventris*, GERHARDT, pp. 1-5, Zeitschr. ent. Breslau ix and p. 205, Deutsche ent. Zeitschr. 1901.
- X. belisarius*, France, ABEILLE, p. 60, Echange xvii; *X. corallinus*, Buchara, *fuenteanus*, Spain, *semirufus*, Samarkand, p. 68, REITTER, Deutsche ent. Zeitschr. 1901; *X. hydrocephalus*, Colombia, FAUVEL, p. 83, Rev. Ent. franc. xx : n. spp.
- Xenogaster nigricollis*, S. America, SILVESTRI, p. 3, Boll. Mus. Torino xvi, No. 398, n. sp.

PSELAPHIDÆ.

- [Cf. FLEISCHER (463), NORMAND (975), PEYERIMHOFF (1030, 1031), PIC (1047, 1049), RAFFRAY (1100, 1101, 1103), REITTER (1125, 1134, 1143, 1154), SAINTE-CLAIRE-DEVILLE (1200), WICKHAM (1486).]
- Adranes pacificus*, p. 26, *taylori*, p. 27, N. America, WICKHAM, Canad. Ent. xxxiii, n. spp.
- Amaurops leptoderina*, Dalmatia, REITTER, p. 22, Wien: ent. Zeit. xx, n. sp.
- Asymoplectus semipunctatus*, p. 120, *fissus*, p. 121, S. America, RAFFRAY, Ann. S. African Mus. ii, n. spp.
- Batrissodes shingalensis*, *saucius*, Ceylon, RAFFRAY, Ann. Soc. ent. France lxx, p. 27, n. spp.
- Biblopectus angustulus*, S. Africa, RAFFRAY, p. 120, Ann. S. African Mus. ii, n. sp.
- Braunsiella* n. g. *Clavigerides*, p. 201, for *B. pubiventris*, n. sp., Cape Colony, p. 203, RAFFRAY, Bull. Soc. ent. France 1901.
- Bythinus*; the subgenera, PEYERIMHOFF, pp. 297, 298, t. c.; *B. convexus* = (*brenskæi*), REITTER, p. 175, Wien. ent. Zeit. xx; *B. hopffgarteni* = (*karamanni* Reitt.), REITTER, p. 59, t. c.
- B. pastoralis*, Alpes-maritimes, PEYERIMHOFF, p. 56, Abeille xxx; *B. (Xenobythus* subg. n.) *serullazi*, caves, Alpes maritimes, PEYERIMHOFF, p. 203, Bull. Soc. ent. France 1901; *B. (Eccoptobythus* subg. n.), *paradoxus*, Nice, SAINTE-CLAIRE-DEVILLE, p. 271, t. c.; *B. formaneki*,

- Dalmatia, FLEISCHER, p. 144, Wien. ent. Zeit. xx; *B. judaeus*, Jericho, PIC, p. 182, Bull. Soc. zool. France 1900 : n. spp.
- Centrophthalmus grandicornis*, p. 125, *gracilis*, p. 126, RAFFRAY, Ann. S. African Mus. ii, n. spp.
- Cercocerus* Lec. = (*Upoluna* Schauf.), SCHMITT, p. 284, Ann. Carnegie Mus. i.
- Chetorhopalus minutus*, S. Africa, RAFFRAY, p. 117, Ann. S. African Mus. ii, n. sp.
- Eccoptobythus* subg. n. cf. *Bythinus*.
- Enoptostomus alternans*, S. Africa, RAFFRAY, p. 125, t. c., n. sp.
- Hornia* n. g. *Tyrini*, p. 29, for *H. hirtella* n. sp., Ceylon, p. 30, RAFFRAY, Ann. Soc. ent. France lxx.
- Periplectus bicolor*, S. Africa, RAFFRAY, p. 118, Ann. S. African Mus. ii, n. sp.
- Pselaphoptrus lomnickii*, Galicia, REITTER, p. 124, Wien. ent. Zeit. xx, n. sp.
- Pselaphus bankhaasi* referred to *Pselaphoptrus*, REITTER, p. 123, t. c.
- P. tunisicus*, Tunis, NORMAND, p. 147, Bull. Soc. ent. France 1901, n. sp.
- Reichenbachia dimidiata*, p. 123, *marshalli*, p. 124, S. Africa, RAFFRAY, Ann. S. African Mus. ii, n. spp.
- Rybaxis africana*, Rhodesia, RAFFRAY, p. 122, t. c., n. sp.
- Saulcyella* n. g. for *Trimium schmidtii* Maerk., REITTER, p. 229, Wien. ent. Zeit. xx.
- Sintectodes tortipalpus*, Ceylon, RAFFRAY, p. 28, Ann. Soc. ent. France lxx, n. sp.
- Trimodytes sulcifrons*, S. Africa, RAFFRAY, p. 119, Ann. S. African Mus. ii, n. sp.
- Tychus bescidicus*, Moravia, *balcanicus*, Turkey, REITTER, p. 187, Deutsche ent. Zeitschr. 1901; *T. tunisicus*, Tunisia, PIC, p. 2, Exchange xvii : n. spp.
- Xenobythus* subg. n. cf. *Bythinus*.

PAUSSIDÆ.

Pygidial glands, DIERCKX (341).

Paussus elegantulus, Madagascar, FAIRMAIRE, p. 94, Bull. Soc. ent. France 1901, n. sp.

SCYDMÆNIDÆ.

[Cf. ABEILLE (1), LOKAY (853), PEYERIMHOFF (1032), PIC (1049, 1052), SAINTE-CLAIRE-DEVILLE (1032).]

Cephennium (Megaloderus) tunisicum, Tunis, PIC, p. 2, Exchange xvii, n. sp.

Euthia minutissima, Alpes-maritimes, SAINTE-CLAIRE-DEVILLE, p. 57, Abeille xxx, n. sp.

Leptomastax hypogaeus, copula, large and small forms, PAGANETTI-HUMMLER, p. 405, Verh. Ges. Wien li.

Mastigus dalmatinus = (*græcus* Pic), REITTER, p. 176, Wien. ent. Zeit. xx; *M. dalmatinus* and *græcus*, note on, PIC, p. 363, Bull. Soc. ent. France 1901.

M. græcus, Olympia, PIC, p. 49, Exchange xvii, n. sp.

Neuglenes rotundicollis, France, ABEILLE, p. 62, Exchange xvii, n. sp.

Neuraphes (Scydmoraphes) klapaleki, Carinthia, LOKAY, p. 131, Wien. ent. Zeit. xx, n. sp.

Stenichnus angustissimus, Basses-Alpes, PEYERIMHOFF, p. 58, Abeille xxx, n. sp.

SILPHIDÆ.

[Cf. ABEILLE (1), APFELBECK (30), BERG (90), BLAISDELL (118), CARRET (218), CHOBOUT (239), CSIKI (307), EICHELBAUM (399), MÜLLER (953), PIC (1049), REITTER (1121, 1123, 1124, 1138, 1142, 1145), SAINTE-CLAIRE-DEVILLE (103), SCUDDER (1254), XAMBEU (1502).]

The classification of cavernicolous *Silphidæ*, with definitions of the genera allied to *Leptoderus*, MÜLLER, pp. 22–33, Verh. Ges. Wien li.

Silphidæ of Argentina, 7 spp., BERG (90).

Fossil *Silphidæ*, SCUDDER (1254).

Agathidium pueli, Algeria, CHOBOUT, p. 281, Bull. Soc. ent. France 1901, n. sp.

Agyrtecanus subg. n. *Agyrtes*, REITTER, p. 102, Wien. ent. Zeit. xx.

Agyrtes alutaceus, Anatolia, REITTER, p. 102, t. c., n. sp.

Antroherpon stenocephalum, caves in Bosnia, APFELBECK, p. 15, Verh. Ges. Wien li, n. sp.

Bathyscia minuscula, France, ABEILLE, p. 68, Echange xvii; *B. horvathi*, Hungary, CSIKI, p. 487, Termes. Fuzetek xxiv; *B. neumanni*, caves in Bosnia, APFELBECK, p. 15, Verh. Ges. Wien li : n. spp.

Catops; table of palaearctic species, REITTER, pp. 39–48, Deutsche ent. Zeitschr. 1901; *C. watsoni*, *picipes*, larvæ, EICHELBAUM, p. 9, pl. iii, Berlin. ent. Zeitschr. xlv.

C. (Cholevinus) conicicollis, Orenburg, p. 39, *brevipalpis*, Irkutsk, p. 41, *nigricantoides*, Caucasus, p. 42, *tortiscelis*, E. Siberia, p. 46, *alpinoides*, Mongolia, p. 48, REITTER, Deutsche ent. Zeitschr. 1901 : n. spp.

Choleva lederiana, Altai, REITTER, p. 177, Deutsche ent. Zeitschr. 1901, n. sp.

Colon distinctipes, Corfu, *alpestre*, Alps, PIC, p. 65, Echange xvii, n. spp.

Eumecosoma subg. n. for *Antroherpon stenocephalum* Apf., MÜLLER, p. 29, Verh. Ges. Wien li.

Leonhardia n. g. near *Apholeuonius*, for *L. hülfi*, n. sp., Herzegowina, REITTER, p. 128, Wien. ent. Zeit. xx.

Liodes (Anisotoma) hiemalis, France, ABEILLE, p. 61, Echange xvii; *L. baicalica*, Siberia, REITTER, p. 69, Deutsche ent. Zeitschr. 1901 : n. spp.

Necrophilus hydrophiloides, pupa, BLAISDELL, p. 263, p. xi, Ent. News. Philad. xii.

Necrophorus nigricornis in France, table of French species, CARRET, pp. 327–331, Bull. Soc. ent. France 1901.

Pholeuonopsis n. g. for *P. ganglbaueri*, n. sp., caves in Bosnia, APFELBECK, p. 14, Verh. Ges. Wien li.

Silpha carinata varr. n. *blattiformis*, *rufocincta*, p. 121, *carpathica*, p. 122, REITTER, Wien. ent. Zeit. xx.

S. bilineata, Roumania, id. p. 122, t. c., n. sp.

Speleobates n. g., p. 16, for *S. novaki*, p. 19, *pharensis*, p. 20, n. spp., caves in Dalmatia, pl. 1, figg. 1–7, MÜLLER, Verh. Ges. Wien li.

Triarthron punctipennis, Turkestan, REITTER, p. 69, Deutsche ent. Zeitschr. 1901, n. sp.

Troglodromus n. g. near *Cytodromus*, for *T. gaveti*, p. 59, *bonafonsi*, p. 72, n. spp., Alpes-Maritimes, SAINTE-CLAIRE-DEVILLE, Abeille xxx, n. spp.

HISTERIDÆ.

[Cf. BLACKBURN (117), CSIKI (305), HUBBARD (655), LEWIS (841, 842), PENECKE (1006), PÉRINGUEY (1015), THÉRY (1366), XAMBEU (1502).]

Abræus zoppæ, Siebenburgen, PENECKE, p. 16, Wien. ent. Zeit. xx, n. sp.

- Apobletes migneauxi*, characters, LEWIS, p. 241, Ann. Nat. Hist. vii.
Baconia jubaris, p. 371, *choaspites*, p. 372, Brazil, LEWIS, op. cit. viii, n. spp.
Carcinops vaulogeri, Tunis, THÉRY, p. 237, Bull. Soc. ent. France 1901, n. sp.
Chlamydopsis comata, S. Australia, BLACKBURN, p. 109, Tr. R. Soc. S. Austral. xxv, n. sp.
Cyrturus bengalensis, India, LEWIS, p. 242, Ann. Nat. Hist. vii, n. sp.
Hister lameerei, Sahara, *maindronii*, Kurrachi, LEWIS, p. 243, t. c.; *H. czikanni*, China, CSIKI, p. 106, Zichy Ergebn. ii; *H. felipa*, Iowa, p. 373, *hamatilis*, p. 374, *sectator*, Borneo, *baberii*, p. 375, *silvicola*, p. 376, India, LEWIS, op. cit. viii : n. spp.
Hololepta caudicalis, p. 368, *canaliculata*, p. 369, Brazil, LEWIS, t. c. n. spp.
Homalopygus geminatus, Bahia, LEWIS, p. 379, t. c., n. sp.
Hypocaccus asper, Bulawayo, LEWIS, p. 383, t. c., n. sp.
Monoplus; habits, characters, larva, PÉRINGUEY, pp. 178–185, Ann. Soc. ent. France lxx.
M. æmulator, p. 185, *gravis*, *dissidens*, *minus*, p. 186, *sigillatus*, p. 187, S. Africa, PÉRINGUEY, t. c., n. spp.
Niponius canalicollis, Himalaya, LEWIS, p. 370, Ann. Nat. Hist. viii, n. sp.
Notolister sulcicollis Lew. = (*Hister apicalis* Fairm.), LEWIS, p. 243, op. cit. vii.
Omalodes oblongus, Brazil, LEWIS, p. 373, op. cit. viii, n. sp.
Pachycrærus præliaris, Mashonaland, LEWIS, p. 370, t. c., n. sp.
Paratropus altilis, Usambara, *boleti*, Congo, LEWIS, p. 377, t. c., n. spp.
Pelorusus cregæi, Bulawayo, LEWIS, p. 244, op. cit. vii, n. sp.
Phelister gounellei referred to *Baconia*, LEWIS, p. 372, op. cit. viii.
Phylloma labrosum, p. 367, *tuberculatum*, p. 368, Brazil, LEWIS, t. c. : n. spp.
Plæsius cossyphus, characters, LEWIS, p. 241, op. cit. vii.
Platysoma pictipenne, Sumatra, LEWIS, p. 241, t. c., n. sp.
Saprinus viridipennis, Australia, LEWIS, p. 245, t. c., n. sp.
Teretriosoma unicomne, Bahia, p. 379, *æbbingii*, p. 380, *cristatum*, p. 381, India, LEWIS, op. cit. viii, n. spp.
Teretrius latebricola, New York, LEWIS, p. 382, t. c., n. sp.
Tribalus hornii, Ceylon, LEWIS, p. 244, op. cit. vii, n. sp.
Tylois mirificus, Pernambuco, LEWIS, p. 378, op. cit. viii, n. sp.

NITIDULIDÆ and MONOTOMIDÆ

- [Cf. CSIKI (305), GROUVELLE (588), REITTER (1123, 1125, 1150), SCUDDER (1254), XAMBEU (1502).]
Anister n. g. for *A. raffrayi* n. sp., Abyssinia, GROUVELLE, p. 102, Bull. Soc. ent. France 1901.
Brachyleptus notativentris, Jericho, REITTER, p. 188, Deutsche ent. Zeitschr. 1901, n. sp.
Brachypterus sibiricus, Omsk, CSIKI, p. 106, Zichy Ergebn. ii, n. sp.
Carpophilus yuccae, *lacertosus*, habits, SCHWARZ, p. 431, P. ent. Soc. Washington iv.
Micrurula auripubens, Mongolia, REITTER, p. 70, Deutsche ent. Zeitschr. 1901, n. sp.
Monotoma; table of European, REITTER, pp. 193–197, Wien. ent. Zeit. xx.
M. seriata, p. 196, *inseriata*, p. 197, Araxes Valley, id. t. c., n. spp.
Psilopyga fasciata var. ? SCHAEFFER, p. 86, J. N. York Ent. Soc. ix.

TROGOSITIDÆ.

[Cf. GERMAIN (546), LÉVEILLÉ (840).]

Alindria decorsei, Madagascar, LÉVEILLÉ, p. 319, Bull. Soc. ent. France 1901, n. sp.*Nemosoma syriacum*, Lebanon, PIC, p. 33, Echange xvii, ? n. sp.*Nemozomia laudesi*, Martinique, LÉVEILLÉ, Bull. Fr. 1901, p. 318, n. sp.*Phanodesta ishovi*, p. 716, pl., *pubescens*, p. 719, Chili, GERMAIN, An. Univ. Chile c, n. spp.

COLYDIIDÆ.

[Cf. ABEILLE (1), BRAUNS (155), PIC (1049), REITTER (1134).]

Cerylon histeroideus var. n. *nigripes*, REITTER, p. 200, Wien. ent. Zeit. xx.*Cossyphodites* n. g. for *Cossyphodes woodrooffei* Pér., BRAUNS, p. 91, cuts, Ann. Hofmus. Wien xvi.*Cozelus luteopilosus*, Broussa, PIC, p. 3, Echange xvii, n. sp.*Synchita angularis*, France, ABEILLE, p. 61, Echange xvii, n. sp.

CUCUJIDÆ and RHYSODIDÆ.

[Cf. ARROW (33, 34), REITTER (1123), SCUDDER (1254).]

Airaphilus semenowi, Buchara, REITTER, p. 71, Deutsche ent. Zeitschr. 1901, n. sp.*Hyliota (Brontes)* list with synonymy, ARROW, pp. 593-601, Tr. ent. Soc. London 1901.*H. bicolor*, Tasmania, p. 597, *gracilicornis*, Malay penins., Sumatra, p. 598, *siamensis*, Siam, *indica*, S. India, p. 599, *pallida*, p. 600, *brevicollis*, p. 601, Madagascar, id. t. c., n. spp.*Rhysodes*; notes on, ARROW, Ann. Nat. Hist. vii, pp. 83-89.*Rhysodes armatus*, Andaman and Nicobar islds, *malaicus*, Penang, p. 85, *batchianus*, Batchian, *malabaricus*, S. India, p. 86, *quadraticollis*, Tenimber, *boysi*, India, p. 87, *bucculatus*, Sumbawa, p. 88, *anguliceps*, S. India, p. 89, ARROW, t. c., n. spp.

CRYPTOPHAGIDÆ.

Cryptophagus crassicornis, p. 13, *longitarsis*, p. 14, Finland, SAHLBERG, Acta Soc. Faun. Fenn. xix, No. 3, n. spp.

LATHRIDIIDÆ.

[Cf. BELON (85, 86), EICHELBAUM (308), REITTER (1124, 1148), SAHLBERG (1197), SÉMÉNOW (1266).]

Anommatus titanus, Dalmatia, REITTER, p. 23, Wien. ent. Zeit. xx, n. sp.*Cartodere filum*, larva and pupa, EICHELBAUM, Zool. Jahrb. Syst. xiv, pp. 531-536, cuts.*Coninomus apfelbecki*, Constantinople, REITTER, p. 159, pl. iii, fig. 3, Wien. ent. Zeit. xx, n. sp.*Corticaria polyptori*, Finland, SAHLBERG, p. 12, Acta Soc. Faun. Fenn. xix, No. 3, n. sp.*Cortilena*: revision, BELON, pp. 129-151, Ann. Soc. Linn. Lyon xx; Synopsis, BELON, pp. 86-89, Ann. Soc. ent. Belgique xlv.

Holoparamesus truquii, kunzei, distinctions, BELON, p. 169, Bull. Soc. ent. France 1901.

Lathridius altaicus, Altai, REITTER, p. 177, Deutsche ent. Zeitschr. 1901, n. sp.

Merophysiops n. g. for *Merophysia bicarinata* Reitt., SÉMÉNOW, Mem. Ac. St. Petersb. (8) viii, No. 6, p. 15, note 2.

MYCETOPHAGIDÆ.

Atritomus and *Parabaptistes*, nomenclature, REITTER, p. 98, Wien. ent. Zeit. xx.

Litargus leprieuri, Algeria, PIC, p. 65, Echange xvii, n. sp.

Tritoma quadripustulata var. n. *connexa*, REITTER, p. 71, Deutsche ent. Zeitschr. 1901.

T. quadriornata, Talysch mts., REITTER, p. 71, t. c., n. sp.

DERMESTIDÆ and THORICTIDÆ.

Hadrotoma marginata, larva, MjöBERG, p. 189, Ent. Tidskr. xxii.

Thorictus hottentotus, Cape of Good Hope, RAFFRAY, p. 123, Bull. Soc. ent. France 1901, n. sp.

Trogoderma ægyptiaca, Assouan, PIC, p. 33, Echange xvii, n. sp.

BYRRHIDÆ.

[Cf. FAIRMAIRE (432), REITTER (1123), SCUDDER (1254).]

Byrrhocaulus n. g. near *Byrrhus*, for *B. inæqualis* n. sp., N. India, FAIRMAIRE, p. 266, Bull. Soc. ent. France 1901.

Byrrhus indicus, Sikkim, FAIRMAIRE, p. 266, t. c., n. sp.

Limnichus latiusculus, Turkestan, REITTER, p. 72, Deutsche ent. Zeitschr. 1901, n. sp.

PARNIDÆ.

Elmis palæstinus, Jericho, PIC, p. 3, Echange xvii, n. sp.

Limnius, the British, DONISTHORPE, p. 337, pl. ix, Ent. Rec. xiii; *L. dargelasi*, *trogloodytes*, variation, CHAMPION, p. 91, Ent. Mag. xxxvii.

GEORYSSIDÆ and HETEROCERIDÆ.

Georyssus trifossulatus, validity, characters, REITTER, p. 66, Deutsche ent. Zeitschr. 1901.

Heterocerus albineus, Bucharâ, REITTER, p. 66, t. c., n. sp.

LUCANIDÆ.

[Cf. BOILEAU (126-128), FALL (435), JAKOWLEFF (679, 683), KOLBE (776), MEEK (904), MÖLLENKAMP (925), PÉRINGUEY (1014), PLANET (1066), RITSEMA (1169), WATERHOUSE (1450), XAMBEU (1502).]

Lucanidæ of S. Africa, PÉRINGUEY (1014).

Ægus hopei, Sumatra, BOILEAU, p. 19, pl. i, figg. 6, 7, Ann. Soc. ent.

- Belgique xlv ; *Æ. dilaticollis*, Borneo, Sumatra, RITSEMA, p. 189, Notes Leyden Mus. xxii : n. spp.
- Cardanus boileavi*, Borneo, RITSEMA, p. 190, t. c., n. sp.
- Charagmophorus lineatus* ♀, WATERHOUSE, p. 74, Tr. Linn. Soc. London viii.
- Chiasognathus reichei*, habits etc., GERMAIN, p. 451, pl., fig. 2, epistome, An. Univ. Chile lxxvii.
- Cyclommatus cupreonitens*, Java ?, BOILEAU, p. 12, pl. i, fig. 3, Ann. Soc. ent. Belgique xlv ; *C. pulchellus*, New Guinea, MÖLLENKAMP, p. 44, Notes Leyden Mus. xxii : n. spp.
- Diphyllostoma* n. n. to replace *Phyllostoma* q. v., FALL, Canad. Ent. xxxiii, p. 324.
- Ditomodorus mirabilis* ♀, BOILEAU, p. 17, pl. i, fig. 5, Ann. Soc. ent. Belgique xlv.
- Eurytrachelus egregius* var. n. *honesta*, MÖLLENKAMP, p. 47, Notes Leyden Mus. xxii.
- Eurytrachelus cervulus*, Annam, BOILEAU, p. 284, Bull. Soc. ent. France 1901 ; *E. prosti*, Borneo, BOILEAU, p. 15, pl. i, fig. 4, Ann. Soc. ent. Belgique xlv : n. spp.
- Leptinopterus consimilis*, Brazil, MÖLLENKAMP, p. 47, Notes Leyden Mus. xxii, n. sp.
- Lucanus ibericus caspica* subsp. n., SÉMÉNOW, p. 105, Rev. Russe Ent. i ; *L. cervus*, larval habitat, SÉNÉCHAL, p. 190, Feuille Natural. xxxi ; *L. placidus*, variation, MEEK (904).
- Metopodontus wentzel-heckmannæ*, KOLBE, p. 71, SB. Ges. naturf. Berlin 1901 ; *M. (Hoplitocranum) jakowleffi*, Annam, BOILEAU, p. 282, Bull. Soc. ent. France 1901 : n. spp.
- Neolucanus birmaënsis*, Burma, *celebensis*, Celebes, MÖLLENKAMP, Notes Leyden Mus. xxii, n. spp.
- Nigidius validus*, S. Africa, PÉRINGUEY, p. 11, pl. xxxi, fig. 3, Tr. S. African Soc. xii, n. sp.
- Odontolabis fallaciosus*, Annam, BOILEAU, p. 284, Bull. Soc. ent. France 1901 ; *O. relucens*, Sumatra, *cupreiventris*, Borneo, MÖLLENKAMP, p. 45, Notes Leyden Mus. xxii : n. spp.
- Phyllostoma* n. g., *Ceruchini* ?, for *P. fimbriata* n. sp., California, FALL, p. 290, Canad. Ent. xxxiii. [Cf. *Diphyllostoma*, above.]
- Platycerus latus*, California, FALL, p. 291, t. c., n. sp.
- Prosopocælus forceps* ♂, pl., fig. 1, ♀, fig. 2, p. 8, BOILEAU, Ann. Soc. ent. Belgique xlv.
- P. ovatus*, p. 283, *denticulatus*, p. 284, Annam, BOILEAU, Bull. Soc. ent. France 1901, n. spp.
- Pseudolucanus oberthuri* amended description, PLANET, p. 250, Naturaliste 1901.
- Sphenognathus præstans*, Venezuela, JAKOWLEFF, p. 77, Rev. Russe Ent. i ; *S. manifestus*, Bolivia, id. p. 176, t. c., n. spp.

PASSALIDÆ.

Stridulatory organs, BABB (53).

Muscular strength of *Passalus cornutus*, HINDS (626).

SCARABÆIDÆ.

[Cf. ABEILLE (1), ARROW (35-37), BLACKBURN (116), BRENSKE (168), CLOUËT (252), CSIKI (305), DANIEL (321), FAIRMAIRE (427, 429, 430, 432), FALL (434), FELSCHÉ (445, 446), GERMAIN (542, 548), JAKOWLEFF

(684), KOLBE (776), MARCHAL (876), MAYET (894), OHAUS (982-985), PÉRINGUEY (1014), RASPAIL (1105), REITTER (1123, 1124, 1137), RUPERTSBERGER (1194), XAMBEU (1502): also *Cetoniini* p. 138.

The *Scarabæidæ* of S. Africa, PÉRINGUEY (1014).

Coprini.

Anachalcos spectabilis, Rhodesia, PÉRINGUEY, p. 83, Tr. S. African Soc. xii, n. sp.

Acanthocerodes n. g., p. 471, for *A. singularis* n. sp., Cape Colony, p. 472, PÉRINGUEY, t. c.

Aphengoeus n. g., p. 97, near *Epilissus*, for *A. dylpeatus* n. sp., S. Africa, p. 98, pl. xxxix, fig. 22, PÉRINGUEY, t. c.

Aphodobius n. g. near *Aphodius*, p. 420, type *A. misellus* Boh., with *A. villosulus* n. sp., Rhodesia, p. 421, PÉRINGUEY, t. c., n. spp.

Aphodius; British spp., localities and distribution, BOUSKELL (146).

A. consobrinus, Tyrol, *amblyodon*, Alps, DANIEL, p. 139, Soc. ent. xv; *A. (Mendidius) burgaltaicus*, *A. (Phæaphodius) zichyi*, p. 107, *A. (Melinopterus) mehelyi*, *roschlapili*, p. 108, Mongolia, CSIKI, Zichy Ergebn. ii; *A. (Mendidaphodius* subg. n.), *spinifrontis*, p. 73, *A. grafi*, p. 74, Siberia, *A. flavimargo*, Sarepta, p. 75, REITTER, Deutsche ent. Zeitschr. 1901; *A. emeritus*, *valens*, p. 382, *iridescens*, p. 383, *lanuginosus*, p. 385, *A. (? Ammoecius) brevitarsis*, *A. ditus*, p. 388, *genialis*, *decipiens*, p. 390, *intercalaris*, p. 392, *anomalipus*, *serenus*, p. 393, *dubiosus*, p. 398, *probes*, p. 401, *fugitivus*, p. 405, *mashunensis*, p. 406, *hirticeps*, p. 408, *A. (Ammoecius) mimus*, p. 409, *dentinus*, *armaticeps*, *spectabilis*, p. 410, *carinulatus*, p. 411, *A. (Oxyomus) jucundulus*, p. 412, *jugalis*, p. 413, *medioximus*, p. 414, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii : n. spp.

Aulonocnemis torquata, Natal, PÉRINGUEY, p. 285, t. c., n. sp.

Bolboceras atavus=(*panza* Pér.), FELSCHÉ, p. 154, Deutsche ent. Zeitschr. 1901.

B. damarinum, p. 481, *fortuitum*, *spurium*, p. 482, *indubium*, p. 483, *vacivum*, *inchoatum*, p. 485, *plausibile*, p. 486, *auspicatum*, p. 487, *stercorosum*, p. 488, *pannosum*, p. 489, *ornatellum*, p. 490, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii : n. spp.

Bubas bison, metamorphosis, MAYET, pp. 68-70, Bull. Soc. ent. France 1901.

Catharsius bradshawi=(*insignis* Pér.), p. 154, *C. tricornutus*=(*australiz* Shipp.), p. 155, FELSCHÉ, Deutsche ent. Zeitschr. 1901.

C. mirabilis, p. 147, *truncatus*, *tridens*, p. 150, Africa, FELSCHÉ, t. c.; *C. dissepitus*, p. 330, *pylades*, p. 332, *dubius*, p. 334, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii : n. spp.

Chatocanthus n. g. near *Hybosorus*, p. 495, for *C. insuetus* n. sp., Cape Colony, p. 496, PÉRINGUEY, t. c.

Chiron gravis, Basutoland, PÉRINGUEY, p. 475, t. c.; *C. hovanus*, Madagascar, FAIRMAIRE, p. 135, Rev. Ent. franc. xx : n. spp.

Copris sexdentatus=(*globulipennis* Waterh.), FELSCHÉ, p. 154, Deutsche ent. Zeitschr. 1901.

C. umbilicatus, Provence, ABEILLE, p. 68, Echange xvii; *C. macer*, p. 346, *misellus*, p. 349, *cassius*, p. 351, *perturbator*, p. 352, *subidens*, p. 355, *achates*, p. 365, *insidiosus*, p. 366, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii : n. spp.

Coptochirus cognatus, Cape Colony, PÉRINGUEY, p. 428, t. c., n. sp.

Coptorhina vicina, *auspicata*, p. 289, *optata*, p. 290, *imitativa*, p. 295, S. Africa, PÉRINGUEY, t. c., n. spp.

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- Pycnoschema corpulenta*, p. 540, *diversa*, p. 542, *mashuna*, p. 543, S. Africa, PÉRINGUEY, t. c., n. spp.
- Rhizoplatodes* n. g. for *Rhizoplatys castaneipennis* Boh., PÉRINGUEY, p. 561, t. c.
- Syrichthodontus* n. g. for *Syrichthus spurius* Burm., PÉRINGUEY, p. 553, t. c.
- Syrichthomorphus* n. g., p. 554, for *S. termitophilus* n. sp., Transvaal, p. 555, PÉRINGUEY, t. c.
- Temnorhynchus bubalus*, p. 537, *faunus*, p. 538, S. Africa, PÉRINGUEY, t. c., n. spp.
- Venedus* n. g. for *Heteronychus paradoxus* Boh., PÉRINGUEY, p. 556, t. c.

Cetoniini.

[The following memoirs relate to *Cetoniini* viz.:—ARROW (38), FAIRMAIRE (427, 429, 430), HELLER (609), JANSON (688), JORDAN (694), KOLBE (776), KRAATZ (785), MOSER (950, 951).]

- Anacamptorhina concolor*, New Guinea, HELLER, p. 3, Abh. Mus. Dresden x, No. 2, n. sp.
- Bricoptis marginicollis*, Madagascar, FAIRMAIRE, p. 68, Notes Leyden Mus. xxiii, n. sp.
- Callynomes davidis* var. n. *humeralis*, MOSER, p. 529, Berlin. ent. Zeitschr. xlv.
- C. rufithorax*, *cruciatas*, Tonkin, id. p. 530, t. c., n. spp.
- Carolina flavofasciata*, p. 527, *lurida*, p. 528, Tonkin, MOSER, t. c., n. spp.
- Celidota subfasciata*, Madagascar, FAIRMAIRE, p. 157, Rev. Ent. franc. ix; *C. decorii*, Madagascar, FAIRMAIRE, p. 68, Notes Leyden Mus. xxiii: n. spp.
- Chalcopharis* n. g. near *Hemipharis*, for *C. nigroænea* n. sp., N. Guinea, HELLER, p. 4, Abh. Mus. Dresden x, No. 2.
- Chromoptilia perrieri*, Madagascar, FAIRMAIRE, p. 96, Bull. Soc. ent. France 1901, n. sp.
- Clerota castaneipennis*, Sumatra, MOSER, p. 380, Berlin. ent. Zeitschr. xlv, n. sp.
- Clinteria belli*, Bombay, JANSON, p. 180, Tr. ent. Soc. London 1901, n. sp.
- Celodera nigro-scutellaris*, Tonkin, MOSER, p. 527, Berlin. ent. Zeitschr. xlv, n. sp.
- Cenochilus pygidialis*, Bombay, JANSON, p. 185, Tr. ent. Soc. London 1901, n. sp.

- Coryphocera tonkinensis*, Tonkin, MOSER, p. 525, Berlin. ent. Zeitschr. xlv, n. sp.
- Diaphonia parryi*=(*seminigra* Kr.), BLACKBURN, p. 22, Tr. R. Soc. S. Austral. xxv.
- Diceros biplagiatus*, Wetter isld., MOSER, p. 379, Berlin. ent. Zeitschr. xlv, n. sp.
- Dicranorrhina derbyana divortialis* n. subsp., KOLBE, p. 75, SB. Ges. naturf. Berlin 1901.
- Dilochrosis*: list of species, synonymy, HELLER, pp. 5, 6, Abh. Mus. Dresden x, No. 2.
- Diplognatha mhondana*, E. Africa, MOSER, p. 381, Berlin. ent. Zeitschr. xlv, n. sp.
- Epixanthis perrieri, rostrifera*, Madagascar, FAIRMAIRE, p. 152, Rev. Ent. franc. xx; *E. fasciolata*, Madagascar, FAIRMAIRE, p. 68, Notes Leyden Mus. xxiii: n. spp.
- Eudicella nyassica*, Africa, KOLBE, p. 74, SB. Ges. naturf. Berlin 1901, n. sp.
- Euselates tonkinensis*, Tonkin, MOSER, p. 529, Berlin. ent. Zeitschr. xlv, n. sp.
- Glyciphana incerta*, characters and variation, KRAATZ, p. 155, Termes. Fuzetek xxiv.
- G. laterimaculata*, New Guinea, KRAATZ, p. 155, t. c.; *G. andreweesi*, Bombay, JANSON, p. 182, Tr. ent. Soc. London 1901: n. spp.
- Gnathocera uheka*, p. 75, *usafuana*, p. 76, *vestita, pilicollis*, p. 77, *sulcata*, p. 78, Africa, KOLBE, SB. Ges. naturf. Berlin 1901, n. spp.
- Gnorimus pictus*, Tonkin, MOSER, p. 531, Berlin. ent. Zeitschr. xlv, n. sp.
- Goliathus giganteus* var., NOEL, p. 10, Naturaliste 1901.
- Hemiaspis* n. g. near *Pachnoda*, for *H. sanguinosa* n. sp., Madagascar, FAIRMAIRE, p. 156, Rev. Ent. franc. xx.
- Hetrophana dorsopunctata*, Madagascar, FAIRMAIRE, p. 151, t. c., n. sp.
- Heterosoma exasperatum*, p. 66, *breve*, p. 67, Madagascar, FAIRMAIRE, Notes Leyden Mus. xxiii, n. spp.
- Hiberasta* n. g. near *Liostraca*, for *H. longipilis* n. sp., Madagascar, FAIRMAIRE, p. 155, Rev. Ent. franc. xx.
- Ligyromorphus* n. g. near *Myoderma*, for *L. rufiventris* n. sp., Mashonaland, ARROW, p. 257, Ann. Nat. Hist. viii.
- Lomaptera satanas*, N. Guinea, HELLER, p. 7, Abh. Mus. Dresden x, No. 2, n. sp.
- Myoderma nigra*, Cameroons, ARROW, p. 258, Ann. Nat. Hist. viii, n. sp.
- Pœcilopharis minuta*, Tenimber, MOSER, p. 381, Berlin. ent. Zeitschr. xlv, n. sp.
- Potosia hungarica* var. n. *auliensis*, REITTER, p. 76, Deutsche ent. Zeitschr. 1901; *P. floricola* var. n. *azurea*, KOENIG, p. 10, Wien. ent. Zeit. xx.
- Pseudanthracophora* merged in *Eumimimetica*, JANSON, p. 183, Tr. ent. Soc. London 1901.
- Pseudinca wentzel-heckmannæ*, p. 79, *infelix*, p. 80, Nyassaland, KOLBE, SB. Ges. naturf. Berlin 1901, n. spp.
- Pygora viridicincta, cribricollis*, p. 153, *elegantula, ruficollis*, p. 154, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Rhomborrhina thiemei*, Tonkin, MOSER, p. 526, Berlin. ent. Zeitschr. xlv, n. sp.
- Stephanocrates dohertyi*, E. Africa, JORDAN, p. 408, Nov. Zool. viii, n. sp.
- Theodosia perakensis*, Malacca, MOSER, p. 379, Berlin. ent. Zeitschr. xlv, n. sp.
- Trichius bifasciatus*, p. 532, *fraterculus*, p. 533, *cruentus*, p. 534, *elegantulus, flavipes*, p. 535, *saucius*, p. 536, *marmoreus, versicolor*, p. 537, *bicolor*, p. 538, Tonkin, MOSER, Berlin. ent. Zeitschr. xlv, n. spp.

BUPRESTIDÆ.

[Cf. BLACKBURN (116, 117), CHAMPION (227), CSIKI (305), FAIRMAIRE (427), FALL (434), FLICHE (468), JAKOWLEFF (676, 678), KERREMANS (718), KOLBE (776), SCUDDER (1254), THÉRY (1364, 1365), XAMBEU (1502).]

Phylogeny and mimicry in *Buprestida*, KERREMANS (718).

Fossil Buprestid, FLICHE (468).

Acmaeodera pilosella, habits, ALBISSON, p. 141, Feuille Natural. xxxi.

A. postfasciata, Madagascar, FAIRMAIRE, p. 160, Rev. Ent. franc. xx;

A. bowditchi, *lucis*, N. America, FALL, Tr. Amer. ent. Soc. xxvii : n. spp.

Anthaxia nitidiventris, Madagascar, FAIRMAIRE, p. 160, Rev. Ent. franc. xx, n. sp.

Aphanisticus simplex, p. 163, *impressipennis*, p. 164, Madagascar, FAIRMAIRE, t. c., n. spp.

Buprestis sanguinea, sexes, variation, habits, habitat, synonymy, CHAMPION, pp. 379-384, pl. xiii, Tr. ent. Soc. London 1901.

Catoxantha gigantea, larva, etc., ZEHNTNER (1512).

Discoderes corinthius, p. 162, *simplicifrons*, *deformis*, p. 163, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.

Entomogaster neocuris, *bipustulatus*, p. 161, *cupriventris*, p. 162, Madagascar, FAIRMAIRE, t. c., n. spp.

Melobasis interstitialis, Australia, BLACKBURN, p. 130, Tr. R. Soc. S. Austral. xxv, n. sp.

Polybothris tetraleuca, p. 157, *hypocyana*, *perrieri*, p. 158, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.

Pseudianthe n. g. near *Stenianthe*, for *P. tenebrosa* n. sp., Madagascar, FAIRMAIRE, p. 167, t. c.

Psiloptera aloreensis, Malasia, THÉRY, p. 108, Bull. Soc. ent. France 1901, n. sp.

Rethia n. g. near *Sphenoptera* for *R. elateroides* n. sp., Congo, THÉRY, p. 107, t. c.

Sphenoptera chrysostoma, characters, JAKOWLEFF, p. 108, Rev. Russe Ent. i; *S. inermis*, p. 173, *chinensis*, p. 175, *bifulgida*, p. 181, full descriptions, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv; *S. viridiaurea*, *cylindracea*, *dejeani*, *spectabilis*, *mesopotamica fairmairei*, *pelleti*, *adelphina*, notes on synonymy etc., JAKOWLEFF, pp. 50-54, Rev. Russe Ent. i.

S. zichyi, Mongolia, CSIKI, p. 109, Zichy Ergebn. ii; *S. lia*, Buchará, p. 169, *egregia*, Transcaspian, p. 170, *roborowskyi*, Tibet, p. 171, *S. (Hoplistura) dione*, Algeria, p. 176, *kerremansi*, Madras, p. 178, *isis*, Cairo, p. 179, *S. (Chrysoblemma) amena*, Persia, p. 183, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv : n. spp.

Stenianthe crassula, Madagascar, FAIRMAIRE, p. 166, Rev. Ent. franc. xx, n. sp.

Steraspis argodi, Somaliland, THÉRY, p. 109, Bull. Soc. ent. France 1901, n. sp.

Sternocera variabilis var. n. *cyaneicollis pulchra* var. n. *gatzeana*, p. 81, *discedens* var. n. *nigriscens*, *purpurascens*, *viridipennis*, *fastuosa*, p. 82, KOLBE, SB. Ges. naturf. Berlin 1901.

S. discedens, p. 81, *fulleborni*, p. 83, *frutetorum*, p. 84, Nyassaland, KOLBE, t. c., n. spp.

Stigmodera pallas, p. 22, *erubescens*, Thursday island, p. 23, *guttigera*, p. 24, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxv, n. spp.

Trachys perrieri, p. 164, *sellata*, *brevior*, p. 165, *cribrosa*, *micros*, p. 166, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.

THROSCIDÆ and EUCNEMIDÆ.

[Cf. FAIRMAIRE (427), FLEUTIAUX (466), REITTER (1131).]

Fornax rufopubens, p. 167, *patruelis*, p. 168, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.*Hylochaeres harmandi*, Japan, FLEUTIAUX, p. 360, Bull. Mus. Paris vi, n. sp.*Microthagus lewisi*, Japan, FLEUTIAUX, p. 358, t. c., n. sp.*Proxyllobius* n. g., p. 360, for *P. helleri* n. sp., Japan, p. 361, FLEUTIAUX, t. c.*Throsacus dilatatus*, Ordubad, REITTER, p. 60, Wien. ent. Zeit. xx, n. sp.*Xyllobius japonensis*, Japan, FLEUTIAUX, p. 359, Bull. Mus. Paris vi, n. sp.

ELATERIDÆ.

[Cf. DU BUYSSON (192), FAIRMAIRE (427), FALL (434), FLEUTIAUX (466, 467), FRIEDERICHs (489), IVANOV (667), REITTER (1123, 1124, 1137), SAHLBERG (1197), SCHWARZ (1245-1252), SCUDDER (1254), XAMBEU (1502).]

Elateridæ of St. Petersburg, IVANOV (667).

Adelocera fleutiauxi, Congo, SCHWARZ, p. 311, Deutsche ent. Zeitschr. 1901, n. sp.*Adiaphorus parallelus, gracilis*, Ceylon, SCHWARZ, p. 22, t. c., n. spp.*Aeolus trivittatus*, Madagascar, SCHWARZ, p. 323, t. c., n. sp.*Agonischius laterovittatus*, Ceylon, SCHWARZ, p. 37, t. c.; *A. æqualis, bifasciatus*, Sumatra, p. 332, *dispar*, Banguey, p. 333, SCHWARZ, t. c. : n. spp.*Alaus horni*, Ceylon, SCHWARZ, p. 19, t. c.; *A. angusticollis*, Sumatra, SCHWARZ, p. 315, t. c. : n. spp.*Amychus stephensiensis*, Stephens Id., p. 193, *schauinslandi*, p. 194, *rotundicollis*, p. 196, Chatham Ids., SCHWARZ, t. c., n. spp.*Anchastus tongaensis* and *major* referred to *Ischiodontus*, SCHWARZ, p. 351, t. c.*Aphanobius unicolor*, Japan, FLEUTIAUX, p. 357, Bull. Mus. Paris vi, 1901, n. sp.*Asaphes*, name preoccupied, KNAB, p. 91, Ent. News Philad. xii.*Athous villosus* var. = (*rostri* Schwarz), REITTER, p. 57, Wien. ent. Zeit. xx.*Athous martini*, Lenkoran, p. 125, *probonus*, Caucasus, p. 126, H. DU BUYSSON, Bull. Soc. ent. France 1901; *A. championii*, Durango, SCHWARZ, p. 328, Deutsche ent. Zeitschr. 1901 : n. spp.*Cardiophorus*; diversity of coloration of sexes; *C. discicollis*, ♂, SCHWARZ, p. 32, t. c.; *C. thebaicus* = (*demaisioni* Buyss.), *C. erichsoni* n. sp. = (*rufipes* Er.), DU BUYSSON, p. 125, Bull. Soc. ent. France 1901.*C. gaertneri*, Germany, SCHWARZ, p. 16, Deutsche ent. Zeitschr. 1901; *C. differens, discolor*, p. 254, *interruptus*, p. 255, Madagascar, SCHWARZ, t. c.; *C. anulatus*, p. 32, *subhumeralis*, p. 33, *taprobanensis*, p. 34, Ceylon, SCHWARZ, t. c., n. spp.*Cladocerus* n. g. for *Plastocerus* Cand. nec Leconte, SCHWARZ, p. 200, t. c.*Corymbites æthiops* fossil, SCUDDER, p. 744, pl. xxiii, fig. 2, Mon. U.S. Geol. Surv. xxix and op. cit. xl, p. 99.*C. mirabilis, tigrinus*, N. America, FALL, p. 306, Tr. Amer. ent. Soc. xxvii, n. spp.*Cremnostethus* n. g. for part of *Melanotus*, with *C. nigricollis*, n. sp., Assam, SCHWARZ, p. 197, Deutsche ent. Zeitschr. 1901.*Cryptohypnus pulchellus, sabulicola*, distinctions, varieties, FRIEDERICHs, pp. 81-83, Allg. Zeitschr. Ent. vi.*C. perrieri, signatipennis*, p. 169, *inconstans, griseopictus*, p. 170, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.

- Cylindroderus brunneus*, p. 334, *inconditus*, p. 335, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
- Dilobitarsus perrieri*, Madagascar, FAIRMAIRE, p. 168, Rev. Ent. franc. xx, n. sp.
- Diploconus depressus*, p. 326, *apicalis*, p. 327, Sumatra, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
- Dolopius lewisi*, Japan, FLEUTIAUX, p. 358, Bull. Mus. Paris vi, n. sp.
- Elatér koltzei*, Turkestan, REITTER, p. 179, Deutsche ent. Zeitschr. 1901, n. sp.
- Eschatroxus longicollis*, hab. ? SCHWARZ, p. 325, Deutsche ent. Zeitschr. 1901, n. sp.
- Glyphochilus venustus*, p. 319, *laticollis*, p. 320, *brunnipes*, *opaculus*, p. 321, *ustulatus*, p. 322, Australia, SCHWARZ, t. c., n. spp.
- Glyphonyx gregarius*, Sumatra, SCHWARZ, p. 334, t. c., n. sp.
- Hemilimerus inconditus*, Sumatra, SCHWARZ, p. 330, t. c., n. sp.
- Heteroderes ancoralis*, p. 24, *spinosulus*, p. 25, Ceylon, SCHWARZ, t. c., n. spp.
- Hovactyla* n. g. near *Stenactyla*, p. 174, for *H. dermestoides* n. sp., Madagascar, p. 175, FAIRMAIRE, Rev. Ent. franc. xx.
- Hypnoides aeneus*, p. 30, *paucivillus*, p. 31, Ceylon, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
- Hypnoidus variegatus*, Madagascar, SCHWARZ, p. 253, t. c., n. sp.
- Ischiodontus* and *Psephus* distinctions, SCHWARZ, p. 351, t. c.
- Lacon lineatus*, Ceylon, SCHWARZ, p. 18, t. c.; *L. alternatus*, N. Guinea, SCHWARZ, p. 312, t. c.: n. spp.
- Limonius pusillus*, Finland, SAHLBERG, p. 17, Acta Soc. Faun. Fenn. xix, No. 3, n. sp.
- Lobotarsus depressus*, p. 312, *crenatus*, p. 313, W. Africa, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
- Ludius* (*Prosternon*) *anatolicus*, Ak-Chehir, REITTER, p. 100, Wien ent. Zeit. xx; *L. (Selatosomus) impressoides*, Buchara, REITTER, p. 76, Deutsche ent. Zeitschr. 1901; *L. tumidicollis*, Madras, p. 330, *nigritarsis*, Java, p. 331, SCHWARZ, t. c.: n. spp.
- Lycoreus corpulentus* Cand., characters, FAIRMAIRE, p. 171, Rev. Ent. franc. xx.
- L. orbiculatus*, Madagascar, SCHWARZ, p. 314, Deutsche ent. Zeitschr. 1901, n. sp.
- Melanotus candezei*, Java, SCHWARZ, p. 327, t. c., n. sp.
- Melanoxanthus fleutiauxi*, Madagascar, FAIRMAIRE, p. 172, Rev. Ent. franc. xx; *M. horni*, p. 26, *trivittatus*, p. 27, *monticola*, *tenellus*, p. 28, *tenuiculus*, p. 29, Ceylon, SCHWARZ, Deutsche ent. Zeitschr. 1901; *M. vitticollis*, p. 323, *niger*, p. 324, Sumatra, SCHWARZ, t. c.: n. spp.
- Metriaulacus* n. g. near *Melanotus*, for *M. nigrolaterus* n. sp., Borneo, SCHWARZ, p. 198, t. c.
- Monocrepidius arenicola*, Ceylon, SCHWARZ, p. 23, t. c., n. sp.
- Morostoma cotta*, Madagascar, FAIRMAIRE, p. 172, Rev. Ent. franc. xx, n. sp.
- Olophæus cinnamomeus*, Transvaal, SCHWARZ, p. 315, Deutsche ent. Zeitschr. 1901, n. sp.
- Pachyderes*, characters and species, FLEUTIAUX, p. 97, Bull. Soc. ent. France 1901.
- P. africanus*, Sierra Leone, FLEUTIAUX, p. 100, t. c., n. sp.
- Paracardiophorus arenosus*, p. 35, *arenicola*, p. 36, *arenarius*, p. 37, Ceylon, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
- Paracosmesus* n. n. for *Pomachilioides* Schwarz nec Cand., SCHWARZ, p. 38, t. c.
- Platocerus ruficollis*, Ecuador, SCHWARZ, p. 200, t. c., n. sp.
- Pomachilioides dimidiatus*, Sumatra, SCHWARZ, p. 326, t. c., n. sp.

- Peophus semipunctatus*, p. 316, *fusiformis*, p. 317, *puerilis*, p. 318, CAMEROONS, SCHWARZ, t. c.; *P. rufipes*, p. 351, *euaënsis*, p. 352, FIJI IDS., SCHWARZ, t. c., n. spp.
Sephilus minor, Sumatra, SCHWARZ, p. 319, t. c., n. sp.
Silesis harmandi, Japan, FLEUTIAUX, p. 358, Bull. Mus. Paris vi, n. sp.
Sphenomerus rufescens, p. 20, *angustus*, p. 21, CEYLON, SCHWARZ, Deutsche ent. Zeitschr. 1901, n. spp.
Stichotomus testaceus, *fusiformis*, Australia, SCHWARZ, p. 336, t. c., n. spp.
Tetralobus parallelus, Nossi-Bé, SCHWARZ, p. 315, t. c., n. sp.

RHIPICERIDÆ, DASCILLIDÆ.

- Arrhaphipterus phlomides*, Asia Minor, DANIEL, p. 139, Soc. ent. xv, n. sp.
Callirhipis hovana, Madagascar, FAIRMAIRE, p. 173, Rev. Ent. franc. xx, n. sp.
Exagontus n. g. *Dascillidæ*, p. 74, for *E. denticollis* n. sp., Brit. Guiana, p. 75, WATERHOUSE, Tr. Linn. Soc. London viii.
Hydrocyphon deflexicollis, habits, ALBISSON, p. 141, PEYERIMHOFF, p. 167, Feuille Natural. xxxi.
Stenactyla basicornis, Madagascar, FAIRMAIRE, p. 174, Rev. Ent. franc. xx, n. sp.

MALACODERMIDÆ (incl. MELYRIDÆ).

- [Cf. BEDEL & BOURGEOIS (84), BOURGEOIS (143-145), DU BUYSSON (193), FAIRMAIRE (427), GERMAIN (544), GHIGI (551), GORHAM (568A), KOLBE (1363), PIC (1039, 1047, 1049, 1052, 1055), REITTER (1137), UHAGON (1404), XAMBEU (1502).]
Lycid larvæ in Borneo, SHELFORD, p. 690, Rep. Brit. Ass. 1901.
 Value of the light, LANGLEY & VERY (811).
Anthocomus felix, S. Africa, GORHAM, p. 357, Ann. Nat. Hist. vii, n. sp.
Apalochrus micans, p. 177, *perrieri*, p. 178, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
Astylus rubrithorax, Brazil, PIC, p. 93, Echange xvii, n. sp.
Attalus elzearii n. n. for *abeillei* Uh. nec PIC, UHAGON, p. 360, Bol. Soc. espan. i.
A. ridens, *A. ? albofasciatus*, p. 356, *lugens*, p. 357, S. Africa, GORHAM, Ann. Nat. Hist. vii, n. spp.
Axinotarsus varius, Spain, UHAGON, p. 28, An. Soc. espan. xxx, n. sp.
Brachidia referred to *Galerucides*, GERMAIN, p. 597, An. Univ. Chile xcvi.
Cantharis talyschensis, Caucasus, PIC, p. 182, Bull. Soc. zool. France 1900;
C. morfini, Lebanon, PIC, p. 25, Echange xvii : n. spp.
Cautires bourgeoisii, Madagascar, FAIRMAIRE, p. 175, Rev. Ent. franc. xx, n. sp.
Chalicorus ? formicarius, Natal, GORHAM, p. 358, Ann. Nat. Hist. vii, n. sp.
Danaceæ subelongata, Tunis, PIC, p. 10, Echange xvii; *D. sequensi*, Anatolia, REITTER, p. 100, Wien. ent. Zeit. xx; *D. tokatensis*, Tokat, PIC, p. 89, Echange xvii : n. spp.
Ebæus hovanus, Madagascar, FAIRMAIRE, p. 177, Rev. Ent. franc. xx, n. sp.
Euanoma subimpressa, Olympia, PIC, p. 74, Echange xvii, n. sp.
Hapalochrus mashunus, *ærosus*, S. Africa, GORHAM, p. 359, Ann. Nat. Hist. vii, n. spp.
Haplocnemus smyrnensis, Smyrna, PIC, p. 18, Echange xvii; *H. libanicus*, Syria, PIC, p. 9, t. c. : n. spp.
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- Lampyris noctiluca*; varr. n. *minor*, *parvicollis*, OLIVIER, p. 129, *Miscell. ent. ix.*
- Luciola italica*, larva, habits, GHIGI, pp. 183–189, *Bull. Soc. ent. Ital.* xxxiii.
- Lycus (Acantholycus) elegans* var. n. *posticalis*, p. 35, *L. gestroi* ♂, p. 48, BOURGEOIS, *Ann. Soc. ent. France* lxx.
- Lycus (Acantholycus) prometheus*, S. Africa, p. 35, *L. (Lopholycus) lesnei*, Angola, p. 37, *L. inornatus*, S. Africa, p. 41, *L. (Merolycus) bouvieri*, Congo, p. 44, BOURGEOIS, t. c., n. spp.
- Malchinus rosti*, Caucasus, PIC, p. 184, *Bull. Soc. zool. France* 1900; *M. subelongatus*, Samos, PIC, p. 50, *Echange xvii* : n. spp.
- Malthinus nigribuccis* = (*tuniseus* Fairm.), PIC, p. 112, *Bull. Soc. ent. France* 1901.
- M. graciosus*, *ionicus*, Greece, PIC, p. 51, *Echange xvii*; *M. vaucheri*, p. 111, *grandiceps*, p. 112, N. Africa, PIC, *Bull. Soc. ent. France* 1901; *M. ? hovanus*, Madagascar, FAIRMAIRE, p. 176, *Rev. Ent. franc.* xx : n. spp.
- Malthodes*; polymorphic ♀, BOURGEOIS, pp. 268–271, *Bull. Soc. ent. France* 1901.
- M. batillifer*, Algeria, BOURGEOIS, p. 143, t. c., n. sp.
- Mastilius* n. g. near *Pelecophorus*, p. 179, for *M. croceipennis* n. sp., Madagascar, p. 180, FAIRMAIRE, *Rev. Ent. franc.* xx.
- Mastinocerus opacus*, ♀ ?, HUBBARD, p. 348, *P. ent. Soc. Washington* iv.
- Phænopterus græcus*, Greece, PIC, p. 49, *Echange xvii*, n. sp.
- Phosphæus hemipterus*, pairing, BUYSSON, p. 220, *Bull. Soc. ent. France* 1901.
- Podistrina*; list of, with notes; *P. normandi* fuller characters, PIC, pp. 104–106 & 144, *Feuille Natural.* xxxi.
- P. opaciceps*, *ludwigi*, Greece, PIC, p. 50, *Echange xvii*; *P. impennis*, Tunis, PIC, p. 35, t. c. : n. spp.
- Pseudeuonoma reitteri*, *ionica*, Greece, PIC, p. 49, t. c., n. spp.
- Pseudozygia argodi*, Somaliland, PIC, p. 26, t. c., n. sp.
- Psilothrix nitidifrons*, Madagascar, FAIRMAIRE, p. 179, *Rev. Ent. franc.* xx, n. sp.
- Pygidia theresæ*, Corfu, PIC, p. 50, *Echange xvii*; *P. græca*, Olympia, PIC, p. 66, t. c. : n. spp.
- Rhagonycha (Spartiolepta* subg. n.) *marseuli*, Algeria = (*Pyg. geniculata* Mars.), BEDEL & BOURGEOIS, p. 177, *Bull. Soc. ent. France* 1901.
- R. (Armidia) ionica*, *R. corcyrea*, Greece, PIC, p. 50, *Echange xvii*; *R. libanicola*, Lebanon, PIC, p. 17, t. c.; *R. rosti*, *abchasica*, p. 183, *kubanensis*, *obscurior*, p. 184, Caucasus, PIC, *Bull. Soc. zool. France* 1900 : n. spp.
- Silis inciscollis*, Madagascar, FAIRMAIRE, p. 176, *Rev. Ent. franc.* xx, n. sp.
- Spartiolepta* subg. n., cf. *Rhagonycha*.
- Telephorus teter*, Natal, GORHAM, p. 351, *Ann. Nat. Hist.* vii; *T. johannis*, Colombia, KOLBE, p. 478, pl. vii, fig. 2, *Berlin. ent. Zeitschr.* xlvi : n. spp.
- Thoualmus chevrolati* n. n. for *bicolor* Chev. nec L., BOURGEOIS, p. 50, *Ann. Soc. ent. France* lxx.
- Xamerpus perrieri*, *distinctus*, Madagascar, FAIRMAIRE, p. 180, *Rev. Ent. franc.* xx, n. spp.

CLERIDÆ.

[Cf. BLACKBURN (116), CHAMPENOIS (226), GORHAM (568A), PIC (1049), SCHENKLING (1212).]

Callimerus grandjeani, p. 104, *scutellaris*, p. 105, India, SCHENKLING, *Ann. Soc. ent. Belgique* xlv, n. spp.

- Clerus*; synopsis of palearctic, CHAMPENOIS, Abeille xxx, pp. 1-46; the varieties described are not mentioned below; *C. sanguinalis*, synonymy, GORHAM, p. 351, Ann. Nat. Hist. vii.
- C. oberthuri*, Syria, p. 16, *reitteri*, Armenia, p. 19, *cyprius*, Cyprus, p. 23, CHAMPENOIS, t. c., n. spp.
- Elasmocerus picticollis*, Victoria, BLACKBURN, p. 25, Tr. R. Soc. S. Austral. xiv, n. sp.
- Graptoclerus* n. g. p. 351, for *G. signatus*, p. 352, *quadripunctatus*, p. 353, n. spp., S. Africa, and *Clerus equestris* Boh., GORHAM, Ann. Nat. Hist. vii.
- Ommadius caledonicus* Montr. redescribed, SCHENKLING, p. 107, Ann. Soc. ent. Belgique xlv.
- Opetipalpus caffrarius*, S. Africa, GORHAM, p. 355, Ann. Nat. Hist. vii, n. sp.
- Opilo albonotatus*, Bagdad, PIC, p. 10, Echange xvii, n. sp.
- Orthrius striatopunctatus*, with var. *bimaculatus*, India, SCHENKLING, p. 106, Ann. Soc. ent. Belgique xlv, n. sp.
- Phlogistus funestus*, Australia, SCHENKLING, p. 107, t. c., n. sp.
- Prosymnus villosus*, S. Africa, GORHAM, p. 354, Ann. Nat. Hist. vii, n. sp.
- Thanasimus*; spp. and varr. of France, PIC, pp. 248, 249, Rev. Ent. franc. xx; *T. formicarius* var. n. *hilaris*, BUYSSON, p. 25, Rev. Ent. franc. xx.
- Thaneroclerus nanus*, Sumatra, SCHENKLING, p. 106, Ann. Soc. ent. Belgique xlv, n. sp.

LYMEXYLONIDÆ and CUPESIDÆ.

- Hylecoetus perrieri*, Madagascar, *benitonus*, Congo, FAIRMAIRE, p. 181, Rev. Ent. franc. xx, n. spp.
- Tetraphalerus* n. g., p. 520, for *T. wagneri* n. sp., Rio Janeiro, p. 521, WATERHOUSE, Ann. Nat. Hist. vii.

PTINIDÆ.

- [Cf. CHOBOUT (238), PIC (1040, 1042, 1043, 1049, 1052, 1055, 1060), XAMBEU (1502).]
- Anakania* n. g. near *Theca*, for *A. subvetulina* n. sp., Mauritius, PIC, Bull. Soc. ent. France 1901, p. 332.
- Anobium paniceum*, metamorphosis, XAMBEU, p. 127, Naturaliste 1901.
- Eurostus anemophilus*, Mont Ventoux, CHOBOUT, p. 298, Bull. Soc. ent. France 1901, n. sp.
- Gibboxyletinus* n. g. for *G. gounellei* etc., Brazil, not described, PIC, p. 94, Echange xvii.
- Hadrobregmus aureosignatus*, Brazil, *australiensis*, Australia, PIC, p. 94, t. c., n. spp.
- Hedobia*; table of palæarctic, M. & T. PIC, pp. 169-174, Wien. ent. Zeit. xx.
- Ptilinus mexicanus*, Durango, PIC, p. 95, Echange xvii; *P. brasiliensis*, *grouvellei*, Brazil, PIC, p. 278, Naturaliste 1901, n. spp.
- Pinus vestitus* var. n. *antelmi*, PIC, p. 156, Bull. Soc. ent. France 1901.
- P. (Pseudoptinus) pistacie*, p. 51, *salvatori*, p. 52, Greece, PIC, Echange xvii; *P. tokatensis*, Tokat, PIC, p. 58, t. c.; *P. (Eutaphrus) dollei*, Abyssinia, PIC, p. 93, t. c.; *P. cariei*, p. 155, *atricornis*, p. 156, Mauritius, PIC, Bull. Soc. ent. France 1901; *P. mexicanus*, Mexico, PIC, p. 299, t. c.; *P. nigricolor*, Tucuman, PIC, p. 26, Echange xvii: n. spp.
- Trichodesma gorhami* n. n. for *imperator* Gorh., PIC, p. 94, t. c.

- T. mexicana*, Mexico, p. 93, *gounellei*, Brazil, p. 94, PIC, t. c.; *T. senilis*, p. 26, *dentatithorax*, p. 27, Brazil, PIC, t. c. : n. spp.
Trigonogenius nigronotatus, Bolivia, PIC, p. 278, Naturaliste 1901, n. sp.
Trypoptys luteopilosus, Himalaya, *brevipennis*, Ceylon, PIC, p. 24, Echange xvii; *T. subelongatus*, Brazil, PIC, p. 278, Naturaliste 1901 : n. spp.

BOSTRYCHIDÆ.

[Cf. LESNE (834-837), XAMBEU (1502).]

- LESNE monograph of *Bostrychidæ* 4th part: *Xylopertha* and allies, Ann. Soc. ent. France lxi, pp. 473-639, cuts.
 Synopsis of palearctic *Bostrychidæ*, LESNE, Abeille lxx, pp. 73 etc., pls. i, ii.
 Variation of males, LESNE, C.R. Ac. Sci. cxxxiii, p. 847.
Coccographis n. g. *Psocina*, for *C. nigrorubra* n. sp., Tonkin, LESNE, p. 348, Bull. Soc. ent. France 1901.
Enneadesmus bigranulum, p. 603, *decorsei*, p. 604, Madagascar, *evacanthus*, Abyssinia, p. 608, LESNE, Ann. Soc. ent. France lxi, n. spp.
Octodesmus n. g., p. 616, for *O. episternalis* n. sp., India, p. 618, LESNE, t. c.
Scobicia n. g. for various N. American and Atlantic islands *Xylopertha*, LESNE, p. 584, t. c.
Tetrapriocera oceanina, p. 486, Marquesas, *defracta*, p. 487, *lanifrons*, p. 488, S. America, LESNE, t. c., n. spp.
Xylton n. g., p. 542, with the following n. spp., *laceratus*, p. 548, *falsifer*, p. 549, *inflaticauda*, p. 553, *securifer*, p. 554, Africa, *perstratus*, Australia, p. 562, LESNE, t. c.
Xylionulus n. g. for *Xylop. pusillus* Fahr., and *transvena* LESNE, LESNE, p. 516, t. c.
Xylobiops concisus, S. America, p. 509, *parilis*, Mexico, p. 510, LESNE, t. c., n. spp.
Xyloblaptus n. g. for *Xylopertha quadrispinosa* Lec., LESNE, p. 514, t. c.
Xylobosca n. g., p. 564, for *X. hispinosa* MacL. and *mystica* Black., with *X. gemina*, p. 569, *leai*, p. 570, n. spp., Australia, LESNE, t. c.
Xylocis n. g., p. 519, for *X. tortilicornis* n. sp., Ceylon, p. 520, LESNE, t. c.
Xyloctetes n. g., p. 536, with *X. venustus* n. sp., Australia, p. 540, LESNE, t. c.
Xylodeleis n. g. for *obsipa* from Australia, LESNE, p. 525, t. c.
Xylodrypta n. g. for *X. bostrychoides* n. sp., Assam, LESNE, p. 523, t. c.
Xylogenes n. g. for *Xylop. dilatatus* Reitter, LESNE, p. 614, t. c.
Xylomeira n. g., p. 502, for *X. torquata* n. sp., Antilles (= *sextaberculata* Gorb. nec Lec.), p. 503, LESNE, t. c.
Xylonites n. g. for *X. retusus* and *præustus* auctt., LESNE, p. 575, t. c.
Xylopertha scutula, Africa, LESNE, p. 536, t. c., n. sp.
Xyloprista n. g., p. 497, *X. arcellata*, Brazil, p. 499, n. sp., and including *Xylopertha præmorsa* Er. and *hexacantha* Fairm., LESNE, t. c.
Xylopsocus n. g., p. 627, for *Xylopertha capucinus* etc., and the following n. spp. *rubidus*, Australia, p. 629, *ebeninocollis*, New Guinea, p. 631, *radula*, Sumatra, *bicuspis*, Liou-Kiou islds., p. 634, LESNE, t. c.
Xylothrips n. g. for *X. religiosus*, *flavipes* auctt., LESNE, p. 620, t. c.
Xylotillus n. g. for *X. lindii* Blackb., LESNE, p. 540, t. c.

CICIDÆ.

- Cis linearis*, Finland, SAHLBERG, p. 10, Acta Soc. Faun. Fenn. xix, No. 3, n. sp.
Ennearthron striatum, Finland, SAHLBERG, p. 11, t. c., n. sp.

TENEBRIONIDÆ.

[Cf. BERG (89), BLACKBURN (116), CSIKI (305), DESBROCHERS (331), ESCALERA (420), FAIRMAIRE (427, 429, 432), FAUVEL (441), GERMAIN (538, 541), KOLBE (777, 1363), MANGER (874), MÉGNIN (906), REITTER (1123, 1124, 1126, 1128, 1129, 1132, 1148), SEMENOW (1271), TORNIER (1372), WATERHOUSE (1450), XAMBEU (1502).]

Adelostomini; tables of, REITTER, Verh. Ver. Brunn xxxix.

Adelostoma subtilis, Syria, REITTER, p. 193, t. c., n. sp.

Alphitobius distinguendus referred to *Eulochia*, *A. piceus* = (*striatulus* Fairm.), FAIRMAIRE, p. 185, Rev. Ent. franc. xx.

A. limbalis, Madagascar, id., l. c., n. sp.

Amarsenes nepos, Madagascar, FAIRMAIRE, p. 188, Rev. Ent. franc. xx, n. sp.

Anatolica sulcipennis, Mongolia, REITTER, p. 110, Zichy Ergebn. ii; *A. midas*, Tarbagatai, *lucina*, Altai, p. 116, *koltzei*, Alexander Mts., *paphia*, *hauseri*, p. 117, *fausti*, *longithorax*, p. 118, *arethusa*, Siberia, p. 119, *paradoxa*, Turkestan, p. 120, *iduna*, Mongolia, p. 122, *holdereri*, Tibet, p. 121, *granulipleuris*, *pseudacta*, p. 124, *sulcipennis*, p. 125, Mongolia, *medusa*, Songoria, p. 126, *tibialis*, Altai, p. 127, REITTER, Verh. Ver. Brunn xxxix : n. spp.

Asida argenteolimbata, p. 172, *sanchez-gomezi*, p. 173, *martinezi*, *lorcana*, *oberthuri*, p. 175, Spain, ESCALERA, Bol. Soc. espan. i, n. spp.

Calyptopsis escherichi, Asia Minor, REITTER, p. 133, Verh. Ver. Brunn xxxix, n. sp.

Camaria billecocqi, Madagascar, FAIRMAIRE, p. 189, Rev. Ent. franc. xx, n. sp.

Catomus dichrous, Angora, REITTER, p. 224, Deutsche ent. Zeitschr. 1901, n. sp.

Chalcopterus cribratus, Queensland, BLACKBURN, p. 25, Tr. R. Soc. S. Austral. xxv, n. sp.

Chemolamus vickii, p. 186, *infimus*, *perrieri*, p. 187, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.

Colposcelis (*Scelocolpis* subg. n.) for *C. microderoides*, Turkestan, *trisulcata*, Mongolia, p. 106, *forsteri*, *damone*, *amanda*, Chinese Turkestan, p. 107, *C. humerangula*, Turkestan, p. 108, *hybrida*, Issyk-Kul, p. 109, REITTER, Verh. Ver. Brunn xxxix, n. spp.

Cylindronotus bellator, Caucasus, p. 218, *erivanus*, Ordubad, p. 219, REITTER, Deutsche ent. Zeitschr. 1901, n. spp.

Cyphelops n. g. near *Sphaerotus*, p. 73, for *C. inflatus* n. sp., Madagascar, p. 74, FAIRMAIRE, Notes Leyden Mus. xxiii.

Cyphonotus; characters of genus and species, GERMAIN, pp. 275-287, An. Univ. Chile xvii.

C. bonni, Chili, GERMAIN, p. 283, t. c., n. sp.

Cyrtosoma montanum, Brit. Guiana, WATERHOUSE, p. 76, Tr. Linn. Soc. London viii, n. sp.

Damatrix zonulata, Madagascar, FAIRMAIRE, p. 186, Rev. Ent. franc. xx, n. sp.

Dendarus (*Pandarinus*) *vagans*, Transcaspian, REITTER, p. 180, Deutsche ent. Zeitschr. 1901, n. sp.

Entomogonus amandanus, Ordubad, REITTER, p. 211, t. c., n. sp.

Epipedonota intercostata, p. 269, *sublineata*, p. 270, *biramosa*, p. 271, Argentina, BERG, Comun. Mus. Buenos Aires i, n. spp.

Eulipus punctidorsis, Morocco, REITTER, p. 184, Verh. Ver. Brunn xxxix, n. sp.

- Euryhelops* n. g. for *Helops championi*, REITTER, p. 209, Deutsche ent. Zeitschr. 1901; *E. tiro*, Taschkend, *nadasi*, Alai, p. 215, *cylindro-notoides*, Turkestan, p. 216, REITTER, t. c. : n. spp.
- Gnathosia elongata*, p. 98, *humerosa*, p. 99, Buchara, REITTER, Verh. Ver. Brunn xxxix, n. spp.
- Gonocephalum reitteri*, Mongolia, CSIKI, p. 111, Zichy Ergebn. ii, n. sp.
- Halammobia* n. g. for *Phaleria pellucida* Herbst, SEMENOW, p. 92, Rev. Russe Ent. i.
- Hedyphanes* (*Catomidius*) *subniger*, Transcaspien, REITTER, p. 182, Deutsche ent. Zeitschr. 1901, n. sp.
- Hegeterocara* n. g. *Tentyriini*, for *H. arabica* n. sp., Red Sea, REITTER, p. 190, Verh. Ver. Brunn xxxix.
- Helops immarginatus*, Mardin, p. 212, *theanus*, Amasia, *prometheus*, Transcaucasus, p. 213, *peropacus*, Armenia, p. 214, REITTER, Deutsche ent. Zeitschr. 1901, n. spp.
- Hipalmus æquatorius*, Ecuador, KOLBE, p. 479, pl. vii, fig. 3, Berlin. ent. Zeitschr. xlii, n. sp.
- Hyonthis heydeni*, *sauleyi*, Syria, REITTER, p. 139, Verh. Ver. Brunn xxxix, n. spp.
- Hyonthosoma* n. g. for *Hyonthis occidentalis* Fairm., REITTER, p. 142, t. c.
- Læna dentitibia*, Buchara, p. 62, *brevipennis*, Alatau, p. 63, REITTER, Wien. ent. Zeit. xx, n. spp.
- Lasiostola* (*Centrocnemis*) *interrupta*, Turkestan, REITTER, p. 161, pl. iii, fig. 5, t. c., n. sp.
- Madobalus* n. g. near *Melanocratus*, for *M. rotundicollis* n. sp., Madagascar, FAIRMAIRE, p. 73, Notes Leyden Mus. xxiii.
- Melanesthes mongolica*, *heydeni*, Mongolia, CSIKI, p. 112, Zichy Ergebn. ii, n. spp.
- Mesostenopa brevicornis*, Soudan, REITTER, p. 142, Verh. Ver. Brunn xxxix, n. sp.
- Micipsina* n. g. for *M. rolphi* Fairm., REITTER, p. 188, t. c.
- Microdera strigiventris*, Chinese Turkestan, p. 157, REITTER, t. c.
- Miotodera* n. g. near *Nesogena*, p. 190, for *M. funeraria* n. sp., Madagascar, p. 191, FAIRMAIRE, Rev. Ent. franc. xx.
- Nalassus planivittis* All. as *Helops*, characters, REITTER, p. 220, Deutsche ent. Zeitschr. 1901.
- Neocisba* subg. n. of *Pachychile* for *P. dissecta* Kr., REITTER, p. 147, Verh. Ver. Brunn xxxix.
- Odocnemis korbi*, Asia Minor, REITTER, p. 219, Deutsche ent. Zeitschr. 1901, n. sp.
- Pachychile aulonocelis*, Spain, p. 148, *desbrochersi*, Algeria, p. 150, *obtuscostata*, Marocco, p. 152, REITTER, Verh. Ver. Brunn xxxix, n. spp.
- Pachychilina* n. g., p. 145, for *P. oxyophthalmus* n. sp., Tunis, p. 146, REITTER, t. c.
- Parecatus incincolis*, *interruptus*, p. 182, *machloides*, p. 183, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Penthicus sequensii*, Irkutsk, REITTER, p. 79, Deutsche ent. Zeitschr. 1901, n. sp.
- Phaleria provincialis*, France, FAUVEL, p. 253, Rev. Ent. franc. xx; *P. pontica*, Crimea, SEMENOW, p. 90, Rev. Russe Ent. i; *P. ellipsodes*, Madagascar, FAIRMAIRE, p. 184, Rev. Ent. franc. xx : n. spp.
- Phrynocolus madecassus*, Madagascar, FAIRMAIRE, p. 183, t. c., n. sp.
- Platyscelis* (*Platynoscelis*) *sinuatocollis*, Buchara, REITTER, p. 180, Deutsche ent. Zeitschr. 1901, n. sp.
- Porphyrhya camæna*, Madagascar, FAIRMAIRE, p. 188, Rev. Ent. franc. xx, n. sp.
- Proscorus* n. g. near *Porphyrhya*, p. 188, for *P. cyaneostriatus* n. sp., Madagascar, p. 189, FAIRMAIRE, t. c.

- Prosodes transfuga* var. n. *sulcatissima*, REITTER, p. 78, Deutsche ent. Zeitschr. 1901.
- P. bactrianiformis*, Buchara, id., p. 77, t. c., n. sp.
- Pseudogena lavistriata*, Madagascar, FAIRMAIRE, p. 191, Rev. Ent. franc. xx, n. sp.
- Psilachnopus* n. g. *Trachyscelini*, p. 161, for *P. cribratellus* n. sp., Transcaucasus, p. 162, pl. iii, fig. 6, REITTER, Wien. ent. Zeit. xx.
- Pterocoma*; species tabulated, REITTER, pp. 189-192, Deutsche ent. Zeitschr. 1901.
- P. alutacea*, Kashgar, p. 190, *fuscopilosa*, Margellan, *plicicollis*, Chinese Turkestan, p. 101, REITTER, t. c., n. spp.
- Pterocomodes* n. g. *Pimeliides*, p. 159, for *P. acutus* n. sp., Turkestan, p. 160, pl. iii, fig. 4, REITTER, Wien. ent. Zeit. xx.
- Pteroderes* n. g., p. 446, ? *Eutelides*, for *P. tuberosus* n. sp., Chili, p. 448, GERMAIN, An. Univ. Chile lxxxvii.
- Raiboscelis angustitarsis*, Armenia, REITTER, p. 210, Deutsche ent. Zeitschr. 1901, n. sp.
- Scelocolpis* subg. n. of *Colposcelis*, q.v.
- Scythis sculptilis*, Pekin, p. 163, *kraatzi*, p. 164, *integrina*, p. 165, Kirghisia, *ballioni*, Chodshent, *banghaasi*, Mongolia, p. 166, REITTER, Verh. Ver. Brunn xxxix, n. spp.
- Scytosoma funebris*, Songoria, REITTER, p. 162, t. c., n. sp.
- Stenogena substriata*, p. 191, *crenulata*, p. 192, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Stenomax kurdistanus*, Erzeroum, *scutellatus*, Asia Minor, p. 221, REITTER, Deutsche ent. Zeitschr. 1901.
- Styphacus* n. g. near *Melanocratus*, for *S. decorsii*, p. 71, *humerosus*, p. 72, n. spp., Madagascar, FAIRMAIRE, Notes Leyden Mus. xxiii.
- Suarezius cupreolus*, Madagascar, FAIRMAIRE, p. 185, Rev. Ent. franc. xx, n. sp.
- Tagona rugipleuris*, Turkestan, REITTER, p. 76, t. c., n. sp.
- Tagonoides* [by error *Trigonoides*] *costulatus*, N. India, FAIRMAIRE, p. 267, Bull. Soc. ent. France 1901, n. sp.
- Tamena* n. g. for *Psammocryptus rugiceps*, REITTER, p. 143, Verh. Ver. Brunn xxxix.
- Tenebrio molitor*, metamorphosis, statistics, MANGER, pp. 73, 74, Soc. ent. xvi; *T. molitor*, attacking fowls, MÉUNIN, C.R. Soc. Biol. liii, p. 834.
- Tenebriomimus* n. g. near *Tenebrio*, for *T. adansoniarum* n. sp., E. Africa, KOLBE, Allg. Zeitschr. Ent. vi.
- Tentyria lateritia*, Algaroe, p. 169, *calcarata*, Malaga, p. 170, *duplicata*, p. 172, *ocularis*, p. 174, Tripolis, *sporadica*, Kasos, p. 179, *acuticollis*, *ganglbaueri*, Turkestan, *punctipleuris*, Caucasus, p. 182, *robustoides*, Transcaspian, p. 183, REITTER, Verh. Ver. Brunn xxxix, n. spp.
- Tentyrina* n. g. for *Tentyria haagi*, *orbiculata*, REITTER, p. 166, t. c.
- Tentyrini*; tables of, REITTER, Verh. Ver. Brunn xxxix.
- Tentyronota* n. g. for *Micipsa rotundicollis* Kr., REITTER, p. 188, t. c.
- Trigonoscelis auliensis*, Turkestan, REITTER, p. 78, Deutsche ent. Zeitschr. 1901; *T. (Sternoplax) iduna*, Kuldscha, REITTER, p. 179, t. c.; *T. zichyi*, p. 110, *reitteri*, p. 111, Mongolia, CSIKI, Zichy Ergebn. ii: n. spp.
- Xanthomus semiopacus*, Transcaspian, p. 222, *humericidens*, Ordubad, p. 223, REITTER, Deutsche ent. Zeitschr. 1901, n. spp.

CISTELIDÆ.

[Cf. CSIKI (307), DESBROCHERS (331), FAIRMAIRE (427), LAMBERTIE (806), PIC (1041), SEMENOW (1274).]

Cistelidæ of France and Corsica, DESBROCHERS (331).

Allecula discipennis, Madagascar, FAIRMAIRE, p. 193, Rev. Ent. franc. xx, n. sp.

Hymenorus scutellatus, Greece, PIC, p. 254, Bull. Soc. ent. France 1901 ;
H. avajewi, Centr. Russia, SEMENOW, p. 168, Rev. Russe Ent. i :
n. spp.

Isomira hungarica, Hungary, CSIKI, p. 488, Termes. Fuzetek xxiv, n. sp.

Nesotaurus dermestoides, Madagascar, FAIRMAIRE, p. 193, Rev. Ent. franc. xx, n. sp.

Omophilus lepturoides, great assembly, LAMBERTIE (806).

Stenerula suturella, Madagascar, FAIRMAIRE, p. 192, Rev. Ent. franc. xx, n. sp.

PYTHIDÆ.

Salpingus gabrieli, Silesia, GERHARDT, pp. 18–21, Zeitschr. Ent. Breslau xxvi and Deutsche ent. Zeitschr. 1901, p. 156 ; *S. vaulogeri*, Algeria, ABEILLE, p. 234, Bull. Soc. ent. France 1901 ; *S. basalis*, Madagascar, FAIRMAIRE, p. 195, Rev. Ent. franc. xx : n. spp.

MELANDRYIDÆ.

Caspyria n. g. near *Serropalpus*, p. 194, for *C. perrieri* n. sp., Madagascar, p. 195, FAIRMAIRE, Rev. Ent. franc. xx ; *Caspyria* is *Pelecotoidea*, *Rhipiphoridae*, id., t. c., p. 248.

Serropalpus madecassus, Madagascar, FAIRMAIRE, p. 194, t. c., n. sp.

LAGRIIDÆ.

[Cf. FAIRMAIRE (427), KOLBE (778).]

Lagria asperipes, p. 196, *maculiventris*, p. 197, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx ; *L. laticollis*, p. 540, *usambica*, p. 541, *ruficeps*, p. 542, *hirsuta*, *picea*, p. 543, *convexa*, p. 544, *minuta*, *undusumana*, p. 545, *opaca*, p. 546, *collina*, *lanuginosa*, p. 547, *pilosivestis*, p. 548, *gibbosa*, p. 549, Africa, KOLBE, Berlin. ent. Zeitschr. xlv : n. spp.

Lagriostira n. g. for *L. infernalis*, p. 550, *parcepilosa*, p. 551, *hispida*, p. 552, n. spp., Africa, KOLBE, t. c.

Porrolagria derasa, p. 553, *alternata*, p. 554, Africa, KOLBE, t. c., n. spp.

Staius globulicollis, Madagascar, FAIRMAIRE, p. 196, Rev. Ent. franc. xx, n. sp.

ANTHICIDÆ, PEDILIDÆ.

[Cf. CSIKI (305), FAIRMAIRE (427), PIC (1044, 1045, 1049, 1051, 1052, 1055–1059), REITTER (1123, 1141).]

List of species described 1897–1900, PIC, Ann. Soc. ent. Belgique xlv, pp. 248–257.

Anthicus terminatus, synonymy, PIC, p. 130, Miscell. ent. ix.

A. lacunosus, *austriacus*, Europe, PIC, p. 66, Echange xvii ; *A. ionicus*, Greece, PIC, p. 52, t. c. ; *A. oertzeni*, Samos, PIC, p. 181, Rev. Sci. Bourbonnais xiv ; *A. astrachanicus*, Russia, *kuthyi*, p. 113, *dachuricus*, *shishmareffi*, p. 114, Mongolia, CSIKI, Zichy Ergebn. ii ; *A. joannis*, Bagdad, PIC, p. 90, Echange xvii ; *A. ataensis*, Turkestan, PIC, p. 34, t. c. ; *A. rhodesianus*, *A. (Aulacoderus) marshalli*, p. 99, *tumefactus*,

- p. 100, S. Africa, PIC, Rev. Ent. franc. xx ; *A. peringueyi, instygius*, Cape of Good Hope, *malabarensis, robustipes*, India, PIC, p. 95, Echange xvii ; *A. dugesi*, Mexico, *postsignatus*, Uruguay, PIC, p. 90, Ann. Soc. ent. Belgique xlv ; *A. (Acanthinus) tucumanensis, A. gounellei*, S. America, PIC, p. 41, Echange xvii ; *A. subobscurus, groulti*, Brazil, PIC, p. 37, Naturaliste 1901 ; *A. busignyi, externemaculatus*, Sumbawa, id. t. c. : n. spp.
- Euproctus cinerarius*, Madagascar, FAIRMAIRE, p. 197, Rev. Ent. franc. xx, n. sp.
- Formicomus subinflatus, marshalli*, S. Africa, PIC, p. 97, Rev. Ent. franc. xvii ; *F. thomsoni*, India, PIC, p. 90, Ann. Soc. ent. Belgique xlv : n. spp.
- Hylophilus*, cf. *Pseudolotetus* ; *H. brouni* n. n. for *obscurus* Broun, PIC, p. 67, Echange xvii.
- H. marshalli*, S. Africa, PIC, p. 96, Rev. Ent. franc. xx ; *H. ramicornis*, p. 67, *subcurvipes, gounellei, triangularis*, p. 68, Brazil, PIC, Echange xvii : n. spp.
- Hypaspistes* and *Pristocyphus* the same, PIC, p. 364, Bull. Soc. ent. France 1901.
- Mecynotarsus horni*, Ceylon, PIC, p. 363, Deutsche ent. Zeitschr. 1901, n. sp.
- Notoxus gounellei, venustus*, S. America, *nigronotatus, pentheri*, p. 227, *pulcher, simoni, nigricolor, antinorii*, p. 228, S. Africa, PIC, Naturaliste 1901 ; *N. dugesi*, Mexico, PIC, p. 89, Ann. Soc. ent. Belgique xlv : n. spp.
- Ochthenomus coniceps*, Buchara, REITTER, p. 79, Deutsche ent. Zeitschr. 1901, n. sp.
- Pedilus weberi*, Crimea, p. 114, *lavicollis*, Guberli, p. 115, *mongolicus*, N. Mongolia, p. 116, REITTER, Wien. ent. Zeit. xx, n. spp.
- Pseudolotetus* subg. n. of *Hylophilus* for *punctatissimus* Reitt., etc., PIC, p. 67, Echange xvii.
- Tomoderus marshalli*, S. Africa, PIC, p. 98, Rev. Ent. franc. xx ; *T. perrieri*, Madagascar, FAIRMAIRE, p. 197, Rev. Ent. franc. xx ; *T. punctatus, impressipennis, obscuriceps*, S. America, PIC, p. 41, Echange xvii : n. spp.
- Trotomimidea corcyrea*, Corfu, PIC, p. 52, Echange xvii, n. sp.

RHIPIPHORIDÆ and MORDELLIDÆ.

- Mordellistena*, larval habits, WEBSTER, p. 176, Canad. Ent. xxxiii.
- Pelecotoides simplicifrons* = (*Caspyria perrieri* Fairm., supra), FAIRMAIRE, p. 248, Rev. Ent. franc. xx.

CANTHARIDÆ.

- [Cf. CHABAUT (237), FALL (434), PIC (1038, 1048), VOIGTS (1424), XAMBEU (1502).]
- Cantharis* ; tabulation of N. American, FALL, pp. 293-304, Tr. Amer. ent. Soc. xxvii.
- C. peninsularis, margarita*, p. 300, *morora, funerea*, p. 301, *agrestis, stolidus, purpurascens*, p. 302, *chloris, nigripilis, difficilis, infidelis*, p. 303, N. America, FALL, t. c., n. spp.
- Mylabris saharica*, Algeria, CHABAUT, p. 280, Bull. Soc. ent. France 1901, n. sp.
- Zonabris thomasi* n. n. for *distincta* Th., *peringueyi* n. n. for *distincta* Pér., *egregia* n. n. for *villosa* Mars., *fahraei* n. n. for *wahlbergi* Mars., *fulvi-*

- cornis* n. n. for *flavicornis* Fahr., VOIGTS, p. 215, Wien. ent. Zeit. xx;
Z. scabiosa var. n. *auliensis*, *khodjentic* var. n. *ataensis*, PIC, p. 111,
 Bull. Soc. ent. France 1901.
Z. insignipennis, Algeria, PIC, p. 77, Bull. Soc. zool. France 1901; *Z. feni*,
 p. 215, *kilwana*, *escherichi*, p. 216, *seminigra*, p. 217, *Z. (Decat.)*
beniensis, *dolabriformis*, p. 218, Africa, VOIGTS, Wien. ent. Zeit. xx :
 n. spp.

CEDEMERIDÆ.

[Cf. BLACKBURN (116), FAIRMAIRE (427), PIC (1049), XAMBEU (1052).]

- Asclera cavicollis*, Madagascar, FAIRMAIRE, p. 199, Rev. Ent. franc. xx,
 n. sp.
Oedemera sebastiani, Caucasus, PIC, p. 10, Echange xvii, n. sp.
Pseudolycus torridus, Queensland, BLACKBURN, p. 26, Tr. R. Soc. S. Austral.
 xxv, n. sp.
Zabriola n. g. near *Xanthochroa* for *Z. obscurifrons* n. sp., Madagascar,
 FAIRMAIRE, p. 198, Rev. Ent. franc. xx.

CURCULIONIDÆ.

[Cf. ABEILLE (1), APFELBECK (31), BEDEL (83), BLACKBURN (116), CSIKI
 (305, 307), DANIEL (321), DESBROCHERS (329, 330, 332), DURY (379),
 FAIRMAIRE (428, 429), FALL (434), FUENTE (520), GERMAIN (537, 539),
 HELLER (609, 610), KEW (727), KOLBE (777), LEA (818), MACDOUGALL
 (867), PENECKE (1006), PETRI (1026), PEYERIMHOFF (1032), PHILIPPI
 (1035), PIC (1049), PIERRE (1065), REITTER (1123, 1124, 1127, 1134,
 1136, 1144, 1148, 1151-1153), SAHLBERG (1197), SCHILSKY (1213,
 1214), SCHULTZE (1235-1239), STIERLIN (1332, 1333), TRYON (1380),
 WEISE (1468), XAMBEU (1502).]

COCOONS, KEW (727).

- Acalles rubetra* Er., characters, BLACKBURN, p. 31, Tr. R. Soc. S. Austral.
 xxv.
A. paulmeyeri, Turkestan, REITTER, p. 183, Deutsche ent. Zeitschr. 1901,
 n. sp.
Adansonius n. g. *Sophrorrhini*, p. 323, for *A. fructuum* n. sp., E. Africa,
 p. 324, KOLBE, Allg. Zeitschr. Ent. vi.
Alcides ceylonensis, p. 344, *inermis*, p. 345, Ceylon, HELLER, Deutsche ent.
 Zeitschr. 1901, n. spp.
Allodactylus thomsoni, N. China, SCHULTZE, p. 100, Deutsche ent. Zeitschr.
 1901; *A. macrasper*, Croatia, *simplicicollis*, E. Siberia, REITTER, p. 130,
 Wien. ent. Zeit. xx : n. spp.
Alocentron subg. n. cf. *Apion*.
Atophini; table of European, REITTER, pp. 207-214, Wien. ent. Zeit. xx.
Alophus squamiventris, Greece, p. 209, *helfi*, Herzegowina, p. 210, REITTER,
 t. c.; *A. weberi*, Graz, PENECKE, p. 19, Wien. ent. Zeit. xx : n. spp.
Alphitodes n. g. near *Sitones*, for *A. indutus* n. sp., Madagascar, FAIR-
 MAIRE, p. 215, Ann. Soc. ent. Belgique xlv.
Aleirhinus bilineatus, p. 232, *histrio*, p. 233, Madagascar, FAIRMAIRE, t. c.,
 n. spp.
Anaptopus n. g. near *Synaptopus*, for *A. cotter*, p. 221, *conserifrons*,
 p. 222, n. spp., Madagascar, FAIRMAIRE, t. c.
Aphiocephalus planicollis, Madagascar, FAIRMAIRE, p. 240, t. c., n. sp.
Apion; arrangement of in subgenera, of which the following are probably
 new, *Onychapion*, *Phrissotrichium*, *Ceratapion*, *Omphalapion*, *Apy-*

- dapion*, *Alocentron*, SCHILSKY (1213).—Synonymy of various European, SCHILSKY, pp. 365–368, Deutsche ent. Zeitschr. 1901; *A. vicinum* var. n. *sulcithorax*, p. 82, *curtulum* var. n. *frontale*, p. 83, DESBROCHERS, Frelon ix.
- A. henschi*, Herzegowina, *fortipubens*, p. 226, *lobirostre*, *pseudarrogans*, p. 227, Turkestan, *auletoides*, Ordubad, p. 228, REITTER, Wien. ent. Zeit. xx; *A. æirostre*, Jericho, p. 77, *subcrenulatum*, Morières, p. 79, *flavicrus*, Tangier, p. 80, *meieri*, Hamburg, p. 82, DESBROCHERS, Frelon ix; *A. horvathi*, Armenia, SCHILSKY, p. 153, Termes. Fuzetek xxiv; *A. (Ceratapion) angulirostre*, Bucharâ, No. 14, *similans*, E. Europe, No. 21, *nitens*, Algeria, No. 24, *A. korbi*, Caspian, No. 99, SCHILSKY (1213); *A. singhalense*, Ceylon, HELLER, p. 341, Deutsche ent. Zeitschr. 1901 : n. spp.
- Aplemonus dromedarius*, Madagascar, FAIRMAIRE, p. 75, Notes Leyden Mus. xxiii, n. sp.
- Arachnopus* sp., habits, KONINGSBERGER, p. 99, Med. Plantentuin Java xlv, 2.
- Aramigus fulleri* = (*Pantomorus olindæ* Perk.), habits, metamorphosis, CHITTENDEN, pp. 88–96, cuts, Bull. U. S. Dep. Agric. Ent. xxvii; *A. fulleri*, notes on, KOEBELE, pp. 88–90, Bull. U. S. Dep. Agric. Ent. xxx.
- Aroaphila* n. g. *Geonomides*, for *A. cyphothorax* n. sp., N. Guinea, HELLER, p. 9, Abh. Mus. Dresden x, No. 2.
- Aspidapion* subg. n. cf. *Apion*.
- Auletes procerus*, Bucharâ, REITTER, p. 83, Deutsche ent. Zeitschr. 1901, n. sp.
- Bagous cruentatus*, Finland, SAHLBERG, p. 21, Acta Soc. Faun. Fenn. xix, No. 3, n. sp.
- Baris gudenusi*, Austria, SCHULTZE, p. 212, Verh. Ges. Wien li; *B. ignifer*, Spain, FUENTE, p. 134, Bol. Soc. espan. i; *B. perlucida*, Caucasus, REITTER, p. 192, Deutsche ent. Zeitschr. 1901; *B. auliensis*, Turkestan, REITTER, p. 81, t. c.; *B. perrieri*, p. 236, *tenuistriga*, *suturata*, p. 237, *fusciventris*, p. 238, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv; *B. striatocollis*, p. 348, *bivittata*, p. 349, Ceylon, HELLER, Deutsche ent. Zeitschr. 1901 : n. spp.
- Belus viridimetallicus*, New Britain, HELLER, p. 16, Abh. Mus. Dresden x, No. 2, n. sp.
- Brachycyrtus apicicornis*, minor, Madagascar, FAIRMAIRE, p. 220, Ann. Soc. ent. Belgique xlv, n. spp.
- Brachyrrhinus pascuorum*, Basses-Alpes, PEYERIMHOFF, p. 60, Abeille xxx, n. sp.
- Camptorhinus euchromus*, *fuliginosus*, Madagascar, FAIRMAIRE, p. 231, Ann. Soc. ent. Belgique xlv, n. spp.
- Carterorhinus* n. g. *Brachyderides*, for *C. perrieri*, p. 222, *major*, p. 223, n. spp., Madagascar, FAIRMAIRE, t. c.
- Cataphractus elongatus*, N. Guinea, HELLER, p. 11, Abh. Mus. Dresden x, No. 2, n. sp.
- Catapionus calvus*, Thian-Schan, REITTER, p. 183, Deutsche ent. Zeitschr. 1901, n. sp.
- Cathormiocerus densestriatus*, Spain, REITTER, p. 201, Wien. ent. Zeit. xx, n. sp.
- Ceuthorrhynchidius spurnyi*, Tyrol, SCHULTZE, p. 98, Deutsche ent. Zeitschr. 1901, n. sp.
- Ceuthorrhynchus*; notes on European, SCHULTZE, pp. 58–60, t. c.; *C.*; varr. of palæarctic, SCHULTZE, pp. 94–96, t. c.; *C. griseus*, *atomus*, galla, PIERRE, p. 77, Rev. Sci. Bourbonnais xiv.
- C. korbi*, Asia Minor, p. 101, *spichali*, Turkestan, p. 102, *orbiculatus*, Angora, p. 103, *calcaratus*, Anatolia, p. 104, *chobauti*, Algeria, p. 105,

- iconiensis*, Asia Minor, p. 107, *spinicrus*, Bosnia, p. 108, *ignicollis*, Algeria, p. 109, *deplanatus*, Turcomenia, p. 110, *frater*, p. 111, *Axi-rostris*, p. 112, Algeria, SCHULTZE, Deutsche ent. Zeitschr. 1901; *C. (Thamicolus) schultzeanus*, Buchara, REITTER, p. 81, Deutsche ent. Zeitschr. 1901 : n. spp.
- Chalcocybebus massutei*, N. Guinea, HELLER, p. 16, Abh. Mus. Dresden x, No. 2, n. sp.
- Chazarius* n. g. near *Aularhinus*, for *C. inaequalis* n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv.
- Chlorastus* n. g. near *Sciaphilus*, for *C. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 209, t. c.
- Cidnorhinus kaufmanni*, Hungary, p. 86, *rhinoncoides*, Caucasus, p. 87, REITTER, Wien. ent. Zeit. xx, n. spp.
- Celiodes*: varr. of palaearctic, SCHULTZE, pp. 93, 94, Deutsche ent. Zeitschr. 1901; *C. strigatirostris*, *dohrni*, characters, SCHULTZE, p. 57, t. c.; *C. proximus* and *simulans*, distinctions, SCHULTZE, p. 64, t. c.
- C. strigirostris*, Caucasus, SCHULTZE, p. 97, t. c., n. sp.
- Coniaticrichus* n. g. near *Coniatus*, for *C. euchromus* n. sp., Transcaspiian, pl. iii, fig. 7, REITTER, p. 163, Wien. ent. Zeit. xx.
- Corrigetus (Eusomidius) auliensis*, Turkestan, REITTER, p. 80, Deutsche ent. Zeitschr. 1901; *C. setulifer*, Turkestan, REITTER, p. 182, t. c. : n. spp.
- Cratopopsis mauritianus*, Mauritius, *cribratus*, Bourbon, FAIRMAIRE, p. 219, Ann. Soc. ent. Belgique xlv, n. spp.
- Cryptorhynchus lithodermus* Boisd. = (*P. varicosus* Pasc.), LEA, p. 538, pl. xxx, figg. 3, 4; *C. fuliginosus* Boisd. = (*A. immansuetus* Boh. and *Omydaus plinthoides* Pasc.) pl. xxx, figg. 5, 7, P. Linn. Soc. N. S. Wales xxv.
- Cycloteres paleatus*, Madagascar, FAIRMAIRE, p. 224, Ann. Soc. ent. Belgique xlv, n. sp.
- Cylas turcippennis*, habits, early stages, TRYON, p. 176, pls. xv, xvi, Queensland Agric. J. 1900.
- Cyphogonus alboouturatus*, p. 234, *atomus*, p. 235, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv, n. spp.
- Degorsia* n. g. *Hydronomini*, for *D. champenoisi* n. sp., France, BEDEL, p. 359, Bull. Soc. ent. France 1901.
- Dereodus sparsus* var. n. *prasina*, HELLER, p. 340, Deutsche ent. Zeitschr. 1901.
- Desmidophorus floccosus*, p. 225, *rufovellus*, p. 226, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv, n. spp.
- Dorytomus*; table of European, DESBROCHERS, pp. 29–32, Frelon x.
- Drongis* n. g. near *Erihrinus*, for *D. perrieri* n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv.
- Dryophthorus laticauda*, Madagascar, FAIRMAIRE, p. 241, t. c., n. sp.
- Echinocnemus* Fairm. = (*Erihrigous* Faust), FAIRMAIRE, p. 229, t. c.
- Elassophilus elegantulus*, Ceylon, HELLER, p. 346, Deutsche ent. Zeitschr. 1901, n. sp.
- Elautobius* n. g. *Rhynchitides*, p. 342, for *E. horni*, p. 343, n. sp., Ceylon, HELLER, t. c.
- Epiphyllax scabricollis*, p. 238, *lineicollis*, *obscuratus*, *cervinopictus*, p. 239, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv, n. spp.
- Eremnus aequalis*, p. 223, *bidentulus*, p. 224, Madagascar, FAIRMAIRE, t. c., n. spp.
- Ethadomorpha* n. g. *Erihrinarum*, p. 29, for *E. clauda* n. sp., Victoria, p. 30, BLACKBURN, Tr. R. Soc. S. Austral. xxv.
- Euthyphasia funerea*, Victoria, BLACKBURN, p. 26, t. c., n. sp.
- Flamingorhynchus* n. g. *Calandrides* near *Abacobius*, p. 18, for *F. weiskei* n. sp., N. Guinea, p. 19, HELLER, Abh. Mus. Dresden x, No. 2.

- Foucartia henschi*, Slavonia, REITTER, p. 200, Wien. ent. Zeit. xx, n. sp.
Fronto n. g. *Cepurides*, for *F. bimaculatus* n. sp., E. Siberia, PETRI, p. 7, Mon. Hyperini.
- Gonipterus reticulatus* Boisd. = (*G. cancellata* Boh.) LEA, p. 539, pl. xxx, figg. 11-14, P. Linn. Soc. N. S. Wales xxv.
- Gymnetron netum*, galls, PIERRE, p. 48, Rev. Sci. Bourbonnais xiv.
- G. (Aprinus) coreyreum*, Corfu, PIC, p. 58, Echange xvii, n. sp.
- Gymnopholus* n. g. *Geonomides*, for *G. weiskei* n. sp., N. Guinea, HELLER, p. 8, Abh. Mus. Dresden x, No. 2.
- Heteronus elegans*, Madagascar, FAIRMAIRE, p. 240, Ann. Soc. ent. Belgique xlv, n. sp.
- Hyperini*; revision of palæarctic, PETRI (1926).
- Hypera gordycea*, Kurdistan, p. 39, *callosa*, Syria, p. 47, *bosnica*, Volujak, p. 49, *nivosa*, Bosnia, p. 56, *ganglbaueri*, Austria, p. 59, *virescens*, Bosnia, p. 68, *solida*, Buchara, p. 70, *duplopunctata*, Herzegowina, p. 72, *maculosa*, p. 74, *cordicollis*, p. 75, Asia Minor, *quadrato-collis*, Sierra Nevada, p. 85, *longicollis*, Portugal, p. 86, *fumana*, Fiume, p. 90, *judaica*, p. 98, *fausti*, p. 104, *amelek*, p. 105, *reitteri*, p. 106, Syria, PETRI, Mon. Hyperini, n. spp.
- Iphisomus perrieri*, p. 226, *viridisparvus*, p. 227, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv, n. spp.
- Isaniris cribripennis*, Madagascar, FAIRMAIRE, p. 227, t. c., n. sp.
- Larinus multiguttatus*, Transcaspien, REITTER, p. 80, Deutsche ent. Zeitschr. 1901, n. sp.
- Limnobaris sahlbergi*, Turkestan, REITTER, p. 82, t. c., n. sp.
- Liothenus* n. g. near *Derelomus*, for *L. latevittatus* n. sp. Madagascar, p. 244, FAIRMAIRE, Ann. Soc. ent. Belgique xlv.
- Listroderes schythei*, p. 471, pl. i, fig. 4, *cupreosquamosus*, p. 474, fig. 5, *thermarum*, p. 476, fig. 6, *desertorum*, p. 488, fig. 8, *histris*, p. 491, pl. ii, fig. 1, *brevirostris*, p. 496, fig. 2, *erinaceus*, *hoffmanni*, p. 501, fig. 3, *gracilicornis*, p. 504, fig. 4, *fulvicornis*, p. 571, *tristis*, p. 573, fig. 6, *pubescens*, p. 576, fig. 7, *antarcticus*, p. 581, fig. 8, *lævirostris*, p. 583, fig. 9, *lugens*, p. 586, pl. iii, fig. 1, *dentipennis*, p. 589, fig. 2, *angulipennis*, p. 593, fig. 3, *punctiventris*, p. 596, fig. 4, *attenuatus*, p. 598, fig. 5, An. Univ. Chile, Vol. xc; *L. curvipes*, Vol. xci, p. 55, *binodosus*, p. 57, *fallax*, p. 59, *magellanicus*, p. 62, *delaiguei*, p. 63, *lugubris*, p. 65, *difficilis*, p. 68, *proximus*, p. 76, *acutesquamosus*, p. 80, *trivialis*, p. 82, *araucanus*, p. 84, *costulatus*, p. 86, *chilensis*, p. 88, *liputanus*, p. 90, *sticticus*, p. 93, *reticulatus*, p. 96, *subæneus*, p. 97, *montanus*, p. 99, *mus*, p. 102, Vol. xci; *lævigatus*, Vol. xciii, p. 801, *philippii*, p. 805, *incertus*, p. 808, *vulgaris*, p. 812, *victus*, p. 815, *spoliatus*, p. 817, *murinus*, p. 821, *parvulus*, p. 823, *squamirostris*, p. 825, *griseus*, p. 829, *obscurus*, p. 832, *ursinus*, p. 836, Vol. xciii; *hispidus*, Vol. xciv, p. 726, *verrucosus*, p. 728, *dubius*, p. 730, *sobrinus*, p. 732, *frigidus*, p. 734, *inæqualis*, p. 737, *horridus*, p. 741, Vol. xciv; Chili, GERMAIN, An. Univ. Chile : n. spp.
- Listroderites*; monograph of Chilean, GERMAIN (539).
- Lixus algirus*, polyphagous, LESNE, p. 221, Bull. Soc. ent. France 1901.
- Lophotus delfini*, Chili, GERMAIN, p. 1032, An. Univ. Chile lxxiv, n. sp.
- Macrotarsus altaicus*, Altai, p. 18, *kolbei*, Siberia, p. 19, *mysticus* (Faust), Mongolia, p. 24, PETRI, Mon. Hyperini, n. spp.
- Mandalotus crudus*, *rigidus*, *sterilis*, *vetulus*, characters, BLACKBURN, p. 27, Tr. R. Soc. S. Austral. xxv.
- Metialma semisuturata*, p. 233, *curvirostris*, p. 234, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv; *M. fulvirostris*, Ceylon, HELLER, p. 347, Deutsche ent. Zeitschr. 1901 : n. spp.
- Mononychus*; list of European, with varr. and notes, SCHULTZE, pp. 61-64, Deutsche ent. Zeitschr. 1901.

- Mustelinus* n. g. near *Ischnotrachelus*, p. 215, for *M. perrieri*, n. sp., Madagascar, p. 216, FAIRMAIRE, Ann. Soc. ent. Belgique xlv.
- Nanophyes*; various larvæ, XAMBEU, p. 224, Naturaliste 1901.
- N. auliensis*, Turkestan, PIC, p. 90, Echange xvii; *N. pleuralis, fasciolatus, tesseraula*, p. 242, *perelegans*, p. 243, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv; *N. albicollis, ornatus*, Madagascar, FAIRMAIRE, p. 76, Notes Leyden Mus. xiii: n. spp.
- Nemomyx scutellatus*, Tunis, ABEILLE, p. 234, Bull. Soc. ent. France 1901.
- Nosorhinus* n. g. *Baridiites*, for *N. cuneatus*, p. 235, *gabonicus*, Africa, *orientalis*, Singapore, p. 236, n. spp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlv.
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- C. comata*, Hong Kong, GAHAN, p. 67, pl. iv, fig. 8, t. c., n. sp.
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- Olenecamptus battangi*, E. Africa, VILLARD, p. 144, Bull. Soc. ent. France 1901; *O. madecassus*, Madagascar, FAIRMAIRE, p. 226, Rev. Ent. franc. xx: n. spp.
- Opepharus verticalis*, Madagascar, FAIRMAIRE, p. 225, t. c. n. sp.

- Opsidota sculpticollis*, Queensland, BLACKBURN, p. 33, Tr. R. Soc. S. Austral. xxv, n. sp.
- Paralocus vacheri*, Madagascar, FAIRMAIRE, p. 79, Notes Leyden Mus. xxiii; *P. longicollis*, Madagascar, FAIRMAIRE, p. 211, Rev. Ent. franc. xx : n. spp.
- Paratoxotus* n. g. near *Toxotus*, p. 212, for *P. argodii* n. sp., Madagascar, p. 213, FAIRMAIRE, t. c.
- Pathocerus* n. g. near *Mysteria*, p. 522, for *P. wagneri* n. sp., Rio Janeiro, WATERHOUSE, Ann. Nat. Hist. vii.
- Pelargoderus sijthoffi*, Sumatra, RITSEMA, p. 94, Notes Leyden Mus. xxiii, n. sp.
- Penthea tigrina*, W. Australia, BLACKBURN, p. 37, Tr. R. Soc. S. Austral. xxv, n. sp.
- Phacodes modicus*, N. W. Australia, BLACKBURN, p. 31, t. c. n. sp.
- Phymatodes testaceus* var. n. *fulvipennis*, REITTER, p. 101, Wien. ent. Zeit. xx.
- P. (Pseudophymatodes* subg. n.) *altaiensis*, Siberia, PIC, p. 12, Echange xvii, n. sp.
- Pidonia harmandi*, p. 58, *insuturata*, p. 59, Japan, PIC, Bull. Mus. Paris 1901, n. spp.
- Plaxomicrus ventralis*, Tonkin, *latus*, Bhutan, p. 70, *oberthuri*, Assam, p. 71, GAHAN, Tr. ent. Soc. London 1901, n. spp.
- Praonetha nivicincta*, Madagascar, FAIRMAIRE, p. 226, Rev. Ent. franc. xx, n. sp.
- Prionoculus emmae*, Ecuador, KOLBE, p. 480, pl. vii, fig. 4, Berlin. ent. Zeitschr. xli, n. sp.
- Pseudocentrus* n. g. near *Exocentrus*, p. 230, for *P. lineellus* n. sp., Madagascar, p. 231, FAIRMAIRE, Rev. Ent. franc. xx.
- Pseudomyrmecion*; systematic position, LAMEERE, p. 294, Bull. Soc. ent. France 1901; note on, BEDEL, p. 358, t. c.
- Pseudophymatodes* subg. n. of *Phymatodes* q. v.
- Pseudopidonia staudingeri*, Yokohama, PIC, p. 12, Echange xvii, n. sp.
- Purpuricenus kohleri* var. n. *carbonarius*, REITTER, p. 101, Wien. ent. Zeit. xx.
- Ranova forticornis*, Madagascar, FAIRMAIRE, p. 80, Notes Leyden Mus. xxiii, n. sp.
- Rhytiphora uniformis*, N. W. Australia, p. 40, *simsoni*, Tasmania, p. 41, BLACKBURN, Tr. R. Soc. S. Austral. xxv, n. spp.
- Rosalia alpina* var. n. *quadripunctata*, REITTER, p. 202, Wien. ent. Zeit. xx.
- Semnus regulis*, Chili, GERMAIN, p. 453, pl. fig. 3, An. Univ. Chile lxxxvii, n. sp.
- Stenostola inponensis*, Japan, PIC, p. 12, Echange xvii, ? n. sp.
- Sthenias franciscanus*, habits, KONINGSBERGER & ZIMMERMANN, p. 89, Med. Plantentuin Java xlv, 2.
- Strangalia pubescens* var. n. *perobscura* var. n. *rubellata*, p. 77, and *melanurella*, p. 78, *jageri* var. n. *fenestrata*, p. 79, REITTER, Wien. ent. Zeit. xx; *S. melanura latesurata* etc., nomenclature, REITTER, p. 175, Wien. ent. Zeit. xx; *S. emmipoda* var. n., p. 235, *melanura* var. n., p. 286, PIC, Bull. Soc. ent. France 1901.
- S. hybridula*, Spain, REITTER, p. 189, Deutsche ent. Zeitschr. 1901; *S. novercalis*, Caucasus, REITTER, p. 78, Wien. ent. Zeit. xx : n. spp.
- Syllitus cilindricus*, Chili, GERMAIN, p. 256, An. Univ. Chile civ, n. sp.
- Symphyletes lentus*, N. W. Australia, p. 38, *fasciatus*, Queensland, p. 39, BLACKBURN, Tr. R. Soc. S. Austral. xxv, n. spp.
- Teorotrium* n. g. near *Isotrium*, p. 206, for *T. brevipenne* n. sp., Madagascar, p. 207, FAIRMAIRE, Rev. Ent. franc. xx.
- Tephrolamia* n. g. near *Leiopus*, for *T. borbonica* n. sp., Bourbon, FAIRMAIRE, p. 231, t. c.

- Toxotus homocerus*, Asia Minor, DANIEL, p. 139, Soc. ent. xv, n. sp.
Trachyliopus n. g. near *Liopus*, p. 229, for *T. annulicornis* n. sp., Madagascar, p. 230, FAIRMAIRE, Rev. Ent. franc. xx.
Vesperus strepens, habits, VITURAT, p. 6, Echange xvii.
Zygocera concinna, N. W. Australia, BLACKBURN, p. 36, Tr. R. Soc. S. Austral. xxv, n. sp.

BRUCHIDÆ.

- The French species: BEDEL, pp. 341–366, Faune Col. Seine v.
Bruchus; the British species, CHAMPION, pp. 144, 145, Ent. Mag. xxxvii.
Caryopemon signaticolle, Madagascar, PIC, p. 96, Echange xvii, n. sp.
Laria Scop. to be used instead of *Bruchus*, and *Laridæ* instead of *Bruchidæ* or *Mylabridæ*, BEDEL, Faune Col. Seine v, p. 343.
L. affinis var. n. *monticola*, BEDEL, p. 348, t. c.

CHRYSOMELIDÆ.

- [Cf. ABEILLE (1), BEDEL (82), BLACKBURN (115), CSIKI (305), DANIEL (321), FAIRMAIRE (427, 429, 431), GERMAIN (544), GESTRO (549), JACOBSON (669–671), JACOBY (672–675), JACOBY & KOLBE (1363), PIC (1049, 1055), REITTER (1123, 1124, 1130, 1139, 1146, 1151), SCUDDER (1254), SPAETH (1321–1323), SUMAKOW (1342, 1343), WEBSTER (1154), WEISE (1467–1474, 1477, 1478), XAMBEU (1502).]
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Adimonia mongolica, Urga, CSIKI, p. 119, Zichy Ergebn. ii, n. sp.
Ætheomorpha epistomata, S. Africa, JACOBY, p. 226, Tr. ent. Soc. London 1901, n. sp.
Alethaxius columbicus, Colombia, JACOBY, p. 482, pl. vii, fig. 6, Berlin ent. Zeitschr. xlv, n. sp.
Aniaropsis n. g. near *Crioceris*, p. 233, for *A. latifrons* n. sp., Madagascar, p. 234, FAIRMAIRE, Rev. Ent. franc. xx.
Antsianaka perrieri, p. 243, *rugipennis*, *pellucida*, p. 244, *oxyops*, p. 245, Madagascar, FAIRMAIRE, t. c. n. spp.
Anomomera, not distinct from *Centroscelis*, JACOBY, p. 253, Tr. ent. Soc. London 1901.
Aphilenia parvula var. n. *nigrescens*, JACOBSON, p. 117, Ofv. Finska Forh. xliii.
Aphthona semicyanea var. n. *atra*, CSIKI, p. 120, Zichy Ergebn. ii.
A. fuentei, Spain, REITTER, p. 202, Wien. ent. Zeit. xx; *A. hammarstræmi*, Siberia, p. 142, *sundmani*, Tschu River, p. 143, JACOBSON, Ofv. Finska Forh. xliii: n. spp.
A. crassipes, W. Siberia, with var. *alata*, JACOBSON, p. 92, Horæ Soc. ent. Ross. xxxv, n. spp.
Apterocuris n. g. type *Chrysomela sibirica* Gebl., JACOBSON, t. c.
Arsoa n. g. near *Miopristis*, for *A. longimana*, p. 82, *aranaea*, p. 83, n. spp., Madagascar, FAIRMAIRE, Notes Leyden Mus. xxiii.
Asbecesta usambarica, *terminalis*, p. 306, *hintzi*, p. 307, Usambara, WEISE, Deutsche ent. Zeitschr. 1901, n. spp.
Aspidomorpha boisduvali referred to *Thlaspidula*, characters, SPAETH, p. 346, Verh. Ges. Wien li; *A. bioculata* and *fenestrata* distinguished, SPAETH, p. 350, t. c.
A. degenerata, Africa, WEISE, p. 310, Deutsche ent. Zeitschr. 1901; *A. vernicata*, Madagascar, FAIRMAIRE, p. 246, Rev. Ent. franc. xx: n. spp.

- Barybena lurida*, sexes, JACOBY, p. 226, Tr. ent. Soc. London 1901.
B. humeralis, Natal, id., p. 227, t. c. n. sp.
Bedelia viridicærulea, Turkestan, REITTER, p. 84, Deutsche ent. Zeitschr. 1901, n. sp.
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Bradylema rusticella, p. 151, *subcastanea*, p. 152, Africa, WEISE, Arch. Naturg. lxvii, n. spp.
Callispa silacea, Congo, WEISE, p. 225, Deutsche ent. Zeitschr. 1901, n. sp.
Camptolenes brevitarsis, S. Africa, JACOBY, p. 228, Tr. ent. Soc. London 1901, n. sp.
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Cassida sedecimmaculata referred to *Sindia*, SPAETH, p. 347, Verh. Ges. Wien li; *C. salsolæ*, nomenclature, REITTER, p. 175, Wien. ent. Zeit. xx; *C. equestris*, food-plant, KEMP, p. 290, Entomologist xxxiv.
C. foveangula, Turkestan, REITTER, p. 164, pl. iii, fig. 9, Wien. ent. Zeit. xx; *C. residua*, p. 53, *horni*, p. 54, *C. (Odontonychia) gilva*, p. 55, Ceylon, WEISE, Deutsche ent. Zeitschr. 1901; *C. pallicolor*, Madagascar, FAIRMAIRE, p. 247, Rev. Ent. franc. xx; *C. nigro-gibbosa*, Sumatra, SPAETH, p. 10, Ent. Zeit. Stettin lxii : n. spp.
Cassidula interstitialis, Sumatra, SPAETH, p. 12, t. c. n. sp.
Cercyonia variabilis, Bagamojo, WEISE, p. 303, Deutsche ent. Zeitschr. 1901, n. sp.
Cercyonops n. g. for *Chrysomela caraganæ* Gebl., of which varr. n., JACOBSON, p. 83, Horæ Soc. ent. Ross. xxxv.
Chaetocnema concinna var. n. *nitidicollis*, JACOBSON, p. 91, Horæ Soc. ent. Ross. xxxv.
C. ahngerii, Merv, JACOBSON, p. 139, Ofv. Finska Forh. xliii, n. sp.
Chalcoides lamina n. n. for *metallica* Redt., BEDEL, p. 398, Faune Col. Seine v.
Cheiriphyle n. g. *Eumolpidæ*, for *C. metallica* n. sp., Bahr el Ghazal, JACOBY, p. 241, Tr. ent. Soc. London 1901.
Chelysida oblecta, characters of genus and species, SPAETH, p. 750, Verh. Ges. Wien li.
Chilotoma musciformis var. n. *orientalis*, JACOBSON, p. 107, Ofv. Finska Forh. xliii.
Chlamys hirta, fig. 10, *luteola*, fig. 11, *smaragdina*, fig. 12, pl. xiv, figured, JACOBY, P. Z. S. 1901, i.
C. perrieri, *rubiginosa*, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx; *C. lacordairei*, pl. xiv, fig. 8, p. 153, *dentipes*, fig. 5, p. 154, *deyrrollei*, fig. 6, p. 155, *discipennis*, fig. 1, p. 156, *brasiliensis*, S. America, *insularis*, Haiti, p. 157, *cordovens*, fig. 7, p. 158, *clypeata*, fig. 6, *boliviana*, fig. 2, p. 159, *amazonica*, fig. 4, p. 160, *tuberculicollis*, p. 161, *peruana*, p. 162, S. America, *indica*, India, fig. 9, *sumatrana*, Sumatra, p. 163, JACOBY, P. Z. S. 1901, i : n. spp.
Chrysispa squarrosa, p. 231, *fera*, p. 232, Africa, WEISE, Deutsche ent. Zeitschr. 1901, n. sp.
Chrysomela; varr. n. of Asiatic, JACOBSON, pp. 124–127, Ofv. Finska Forh. xliii; *C. ægyptiaca*=(*numida* Reiche) WEISE, p. 256, Deutsche ent. Zeitschr. 1901; *C. montana*, *tibialis*, *subcostata*, characters, JACOBSON, p. 81, Horæ Soc. ent. Ross. xxxv.
C. distans, Mongolia, p. 116, *muralis*, *teichophila*, China, *urbana*, Siberia, p. 117, CSIKI, Zichy Ergebn. ii; *C. convexicollis*, Mongolia, JACOBSON, p. 122, Ofv. Finska Forh. xliii; *C. transvalense*, p. 253, *salisburyensis*, p. 255, Africa, JACOBY, Tr. ent. Soc. London 1901 : n. spp.
Chrysochloa basilea varr. n., JACOBSON, p. 100, Horæ Soc. ent. Ross. xxxv.

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- Calenomenodera costulata*, characters, WEISE, p. 226, Deutsche ent. Zeitschr. 1901.
- Cænobius pauli*, Mombo, WEISE, p. 302, t. c. n. sp.
- Colaspis coneja*, Colombia, KOLBE, p. 481, Deutsche ent. Zeitschr. xlv, n. sp.
- Colusposoma curvipes*, E. Africa, JACOBY, p. 251, Tr. ent. Soc. London 1901; *C. semipurpurea*, Madagascar, JACOBY, p. 293, Ann. Soc. ent. Belgique xlv : n. spp.
- Coptocycla vitreata* referred to *Charidotis, westringi* and *catenata* distinguished, SPAETH, p. 348, Verh. Ges. Wien li.
- C. hyalocincta*, Madagascar, FAIRMAIRE, p. 247, Rev. ent. France xx; *C. aruensis*, Ariu, WEISE, p. 364, Deutsche ent. Zeitschr. 1901 : n. spp.
- Corynodes auripes, varicolor*, Africa, JACOBY, p. 252, Tr. ent. Soc. London 1901, n. spp.
- Crepidodera analis* referred to *Phygasia*, JACOBY, p. 302, Ann. Soc. ent. Belgique xlv; *C. cæruleicollis*, Alps, PIC, p. 20, Echange xvii; *C. concolor, basalis*, Alps, *globipennis*, Tyrol, DANIEL, p. 140, Soc. ent. xv : n. spp.
- Crioceris crassicornis*, p. 162, *kwaensis*, p. 163, E. Africa, WEISE, Arch. Naturg. lxvii; *C. transvalensis*, Africa, JACOBY, p. 213, Tr. ent. Soc. London 1901 : n. spp.
- Cropalatus* n. g. near *Rhæbus*, for *C. perrieri* n. sp., Madagascar, p. 232, FAIRMAIRE, Rev. Ent. franc. xx.
- Crosita (Pezocrosita) zahlbergiana*, Siberia, JACOBSON, p. 120, Ofv. Finska Forh. xliii; *C. (Pezocrosita* subg. n.) *kusnetzowi*, W. Siberia, JACOBSON, p. 78, Horæ Soc. ent. Ross. xxxv, n. spp.
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- C. atrifrons*, France, ABEILLE, p. 70, Echange xvii; *C. distinctenotatus*, Lebanon, PIC, p. 19, t. c.; *C. dilutellus*, Issyk-Kul, JACOBSON, p. 114, Ofv. Finska Forh. xliii; *C. ongudujensis*, W. Siberia, JACOBSON, p. 95, Horæ Soc. ent. Ross. xxxv; *C. krutovskiy*, W. Siberia, JACOBSON, p. 76, t. c.; *C. nigricollis*, Usambara, WEISE, p. 301, Deutsche ent. Zeitschr. 1901; *C. mashonanus*, p. 234, *barkeri*, p. 235, *lividus*, p. 236, *malvernensis, varioplagiatus*, p. 237, *pretoriensis*, p. 238, *benuensis*, p. 239, Africa, JACOBY, Tr. ent. Soc. London 1901; *C. argenteohirsuta*, p. 287, *cæruleipennis*, p. 288, *imitans*, p. 289, Madagascar, JACOBY, Ann. Soc. ent. Belgique xlv; *Cryptocephalus dilutipes, flavocyanus*, p. 236, *oculicollis, argyroleurus*, p. 237, *sulcostriatus, callinotus*, p. 238, *minusculeus*, p. 239, Madagascar, FAIRMAIRE, Rev. Ent. franc. xx : n. spp.
- Cteisella imitatrix*, Peru, SPAETH, p. 348, Verh. Ges. Wien li, n. sp.
- Ctenochira dissoluta*, Peru, SPAETH, p. 349, Verh. Ges. Wien li, n. sp.
- Dactylispa clavata*, p. 235, *misella*, p. 236, *discreta, lenta*, p. 237, Africa, WEISE, Deutsche ent. Zeitschr. 1901; *D. modica*, Africa, WEISE, p. 310, t. c., n. sp.
- Decaria nigripennis, jacybyi*, Mombo, WEISE, p. 305, t. c. n. spp.
- Diacanthini*; defined and revised, WEISE, p. 273-293, t. c.
- Diacanthu adusta, nigricornis*, p. 282, *nigripes, flavescens*, p. 283, *jacybyi, pallipes*, p. 284, *affinis, robusta, pauli*, p. 285, *usambarica*, p. 286,

- collaris*, p. 287, *albidicornis*, *diffusa*, p. 288, *varians*, p. 289, Africa, WEISE, t. c., n. spp.
- Diapromorpha bomaiensis*, p. 219, *tigrina*, *terminata*, p. 220, Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
- Disonycha floridana*, Florida, p. 146, *labiata*, Mexico, p. 148, *argentinensis*, p. 147, *venezuelæ*, p. 148, JACOBY, Entomologist xxxiv, n. spp.
- Donacia thalassina* var. n. *rufo variegata*, *D. vulgaris* var. n. *issykensis*, JACOBSON, Ofv. Finska Forh. xliii.
- D. transcaucasica*, Batoum, SUMAKOW, p. 454, SB. Ges. Dorpat xii, n. sp.
- D. suhlbergi*, Issyk-Kul, JACOBSON, p. 103, Ofv. Finska Forh. xliii, n. sp.
- Donaciasta* n. n. for *Donacilla* Fairm., FAIRMAIRE, p. 233, Rev. Ent. franc. xx.
- Donacilla* n. g. near *Donacia*, p. 127, for *D. perrieri* n. sp., Madagascar, p. 128, FAIRMAIRE, Bull. Soc. ent. France 1901.
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- Emperochela* n. g. type *Porphyraspis palmarum*, SPAETH, p. 333, Verh. Ges. Wien li.
- Endoschyrus* n. g. *Eumolpideæ*, p. 294, for *Endocephalus retifera* Baly which occurs in Madagascar as well as Bahia, JACOBY, Ann. Soc. ent. Belgique xlv.
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- Eumolpus sophiaæ*, Colombia, KOLBE, p. 483, pl. vii, fig. 7, Deutsche ent. Zeitschr. xlii, n. sp.
- Eutornus madagascariensis*, Diego Suarez, JACOBY, p. 300, Ann. Soc. ent. Belgique xlv, n. sp.
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- Foudrasia*; cf. *Novofoudrasia*.
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- G. fulvimargo*, Turkestan, REITTER, p. 186, Deutsche ent. Zeitschr. 1901, n. sp.
- Galerucella sibirica*, *jakowleffi*, Siberia, CSIKI, p. 118, Zichy Ergebn. ii; *G. usambarica*, Mombo, WEISE, p. 307, Deutsche ent. Zeitschr. 1901; *G. madagascariensis*, Diego Suarez, JACOBY, p. 302, Ann. Soc. ent. Belgique xlv : n. spp.
- Gastrolina peltoidea* var. n. *cimex*, JACOBSON, p. 134, Ofv. Finska Forh. xliii.
- Goniochenia (Baranosa) humilis*, Peru?, SPAETH, p. 337, Verh. Ges. Wien li, n. sp.
- Gynandrophthalma stenroosi*, p. 108, *sahlbergi*, p. 109, Siberia, JACOBSON, Ofv. Finska Forh. xliii; *G. triplagiata*, *picturata*, p. 231, *capensis*, p. 232, *malvernensis*, p. 233, S. Africa, JACOBY, Tr. ent. Soc. London 1901 : n. spp.
- Gyriodera sublavicollis*, Natal, JACOBY, p. 230, t. c. n. sp.
- Haltica saliceti*, metamorphoses, WEISE, p. 88, Deutsche ent. Zeitschr. 1901.
- H. sajanica*, *sibirica*, Siberia, CSIKI, p. 119, Zichy Ergebn. ii; *H. alluaudi*, *nitidicollis*, Madagascar, JACOBY, p. 296, Ann. Soc. ent. Belgique xlv : n. spp.
- Hemiphædon* subg. n. of *Phædon* for *P. subtilis* Weise, JACOBSON, p. 131, Ofv. Finska Forh. xliii.
- Hemydacne unicolor*, Madagascar, FAIRMAIRE, p. 234, Rev. Ent. franc. xx, n. sp.

- Hermæophaga ruficollis* = (*Leiometopona suturalis* Brancz.), JACOBSON, p. 91, Horæ Soc. ent. Ross. xxxv.
- Himerida clavareau*, E. Africa, JACOBY, p. 242, Tr. ent. Soc. London 1901, n. sp.
- Hispa congoana*, p. 233, *melancholica*, *pavida*, p. 234, Africa, WEISE, Deutsche ent. Zeitschr. 1901, n. spp.
- Hispellinus crassicornis*, p. 229, *militaris*, p. 230, E. Africa, WEISE, t. c., n. spp.
- Hispide*; synonymical notes on Donckier's recent Catalogue, WEISE, pp. 238-240, t. c.
- Hispopria concinna*, Borneo, p. 85, *apicalis*, Java, p. 87, GESTRO, Bull. Soc. ent. Ital. xxxiii, n. spp.
- Hoplionota rubromarginata*, locality, habits, WEISE, p. 49, Deutsche ent. Zeitschr. 1901.
- Hypericia* subg. n. of *Chrysomela*, BEDEL, p. 421, Faune Col. Seine v.
- Hyphasia nigroscutata*, p. 298, *similis*, p. 299, Madagascar, JACOBY, Ann Soc. ent. Belgique xlv, n. spp.
- Ikopiata* n. g. near *Antsianaka*, p. 245, for *I. lutos* n. sp., Madagascar p. 246, FAIRMAIRE, Rev. Ent. franc. xx.
- Ischyronota*; sexual characters, variation, localities, JACOBSON, pp. 125-127, Wien. ent. Zeit. xx.
- I. desertorum* var. n. *basimargo*, REITTER, p. 108, Wien. ent. Zeit. xx.
- I. spathi*, Turkestan, id. l. c., n. sp.
- Jacoby* n. g. *Diacanthini*, p. 290, for *J. ochracea* n. sp., Madagascar, p. 291, WEISE, Deutsche ent. Zeitschr. 1901.
- Labidostomis sibirica* var. n. *transitoria fallacissima*, JACOBSON, Ofv. Finska Forh. xliii.
- L. korbi*, Asia Minor, WEISE, p. 203, Deutsche ent. Zeitschr. 1901; *L. tjutschewi*, W. Siberia, JACOBSON, p. 75, Horæ Soc. ent. Ross. xxxv : n. spp.
- Lefevrea semistriata*, p. 245, *thoracica*, p. 246, Mashonaland, JACOBY, Tr. ent. Soc. London 1901, n. spp.
- Lema mechow*, p. 147, *macrodera*, p. 152, *bennigseni*, p. 153, *sulcicollis*, *firma*, p. 154, *planifrons*, p. 155, *kirtifrons*, *kolbei*, p. 156, *usambarica*, p. 157, *acutangula*, p. 158, *fugax*, p. 159, *icterica*, p. 160, *pauli*, *suahelorum*, *aurifrons*, p. 161, Africa, WEISE, Arch. Naturg. lxvii; *L. sanguinipennis*, p. 209, *ashantiensis*, p. 210, *impressicollis*, p. 211, *bifoveata*, p. 212, Africa, JACOBY, Tr. ent. Soc. London 1901 : n. spp.
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- Longitarsus weisei*, Siberia, JACOBSON, p. 144, Ofv. Finska Forh. xliii, n. sp.
- Lymidus* n. g. near *Cusmena*, for *L. coqueretii* n. sp., Bourbon, FAIRMAIRE, p. 241, Rev. Ent. franc. xx.
- Lyperus ehnergi*, Tschu river, JACOBSON, p. 135, Ofv. Finska Forh. xliii, n. sp.
- Macetes variegatus*, p. 242, *ornatipennis*, p. 243, S. Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
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- Malegia jacobsoni*, Transcaspian, JACOBSON, p. 179, Rev. Russe Ent. i; *M. latipennis*, Madagascar, PIC, p. 96, Echange xvii : n. spp.
- Mantura matthewesi* var. n. *dichroa*, BEDEL, p. 421, Faune Col. Seine v.

- Mashonania* n. g. *Eumolpidae*, for *M. brunnea*, p. 247, *nigrita*, p. 248, n. spp., S. Africa, JACOBY, Tr. ent. Soc. London 1901.
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- Melasoma lapponicum* var. n. *quadripustulatum*, JACOBSON, p. 90, Horæ Soc. ent. Ross. xxxv; *M. suliceti*, larva, WEISE, p. 87, Deutsche ent. Zeitschr. 1901.
- Mesomphalia*, cf. *Pseudomesomphalia*.
- M. nudoplagiata*, Brazil, SPAETH, p. 339, Verh. Ges. Wien li, n. sp.
- Metriopecta longula*, Madagascar, FAIRMAIRE, p. 84, Notes Leyden Mus. xxiii; *M. impressicollis*, Madagascar, FAIRMAIRE, p. 246, Rev. Ent. franc. xx : n. spp.
- Miopristis varipes*, p. 217, *hirta*, *melanocephalus*, p. 218, S. Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
- Myochrous denticollis*, injurious habits, WEBSTER (1454).
- Myrcinella* n. g. for *Myrcina spectabilis* and *picea* Baly, and *M. minor* n. sp., Madagascar, JACOBY, p. 301, Ann. Soc. ent. Belgique xlv.
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- Nerissus tuberculatus*, p. 244, *bicoloratus*, p. 245, Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
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- Nodostonopa* n. g. *Eumolpidae*, p. 293, for *N. subcostata* n. sp., Madagascar, p. 294, JACOBY, t. c.
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- Orectia*, cf. *Parorectia*.
- Oreomela clypealis*, Schamsi, JACOBSON, p. 119, Ofv. Finska Forh. xliii, n. sp.
- Oreothassa* n. g., p. 86, near *Hydrothassa*, for *O. martjanowi* n. sp., W. Siberia, p. 88, JACOBSON, Horæ Soc. ent. Ross. xxxv.
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- Parorectis* subg. n. of *Orectis*, for *Cassida callosa* Boh., SPAETH, p. 346, Verh. Ges. Wien li.
- Patrisma gibbosa* Gestro referred to *Cassida*, SPAETH, p. 347, t. c.
- Peploptera zambesiana* = (*fulvitaris* Jac.), *humeralis* and *abyssinica* queried, JACOBY, p. 221, Tr. ent. Soc. London 1901.
- P. curvilinea*, p. 222, *barkeri*, p. 223, *irregularis*, p. 224, *marshalli*, p. 225, S. Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
- Pezocrosita* subg. n., cf. *Crosita*.
- Phædon*, cf. *Hemiphædon*.
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- Philhydronopa* n. g. near *Paropsis*, for *P. subænea* n. sp., Australia, WEISE, p. 170, Arch. Naturg. lxvii.
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- Physoma klugi*, Madagascar, JACOBY, p. 299, Ann. Soc. ent. Belgique xlv, n. sp.
- Phytodecta viminalis* var. n. *reniplagiata*, *flavicornis* var. n. *infernalis*, PENECKE, p. 20, Wien. ent. Zeit. xx; *P. sibirica* var. n. *fraterna*, JACOBSON, p. 82, Horæ Soc. ent. Ross. xxxv.
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- Platypria clavareau*, Algeria, WEISE, p. 226, Deutsche ent. Zeitschr. 1901, n. sp.
- Pleurispa* n. g. near *Monochirus*, p. 230, for *P. misella* n. sp., E. Africa, p. 231, WEISE, t. c.
- Pæculomorpha fulvicornis*, p. 213, *bicolor*, p. 214, *fusciaticollis*, p. 215, Africa, JACOBY, Tr. ent. Soc. London 1901, n. spp.
- Polysticta confluentis* var. *marshalli* sp. n. (sic), JACOBY, p. 254, t. c.
- Porphyraspis sublexis*, p. 333, *panamæ*, p. 334, *valida*, p. 335, Colombia, SPAETH, Verh. Ges. Wien li, n. spp.
- Prasocuris weisei*, Altai, REITTER, p. 163, pl. iii, fig. 8, Wien. ent. Zeit. xx, n. sp.
- Prioptera rugosipennis*, Sumatra, SPAETH, p. 3, Ent. Zeit. Stettin lxii, n. sp.
- Procris* n. g., pp. 166, type *Paropsis pictipennis* Boh., WEISE, Arch. Naturg. lxvii.
- Prosmidia* n. g. *Galerucide*, p. 293, with *P. capensis*, p. 296, *bennigseni*, p. 297, *suahelorum*, p. 298, n. spp., Africa, WEISE, Deutsche ent. Zeitschr. 1901.
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- Psyllonima* n. n. for *Macrocnema* Weise nec Steph., BEDEL, p. 200, Faune Col. Seine v.
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- Rhembastus semibrunneus, inermis*, p. 249, *mashonanus*, p. 250, Africa, JACOBY, Tr. ent. Soc. London 1901; *R. cœruleipennis*, p. 290, *rugicollis*, p. 291, Madagascar, JACOBY, Ann. Soc. ent. Belgique xlv; n. spp.
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- Scotosus* n. g. *Eumolpides*, for *S. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 240, Rev. Ent. franc. xx.
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- Sonchia* n. g. *Diacanthini*, for *Hyperacantha pectoralis* Jac., WEISE, p. 290, Deutsche ent. Zeitschr. 1901.
- Sternoplatus weisei*, Mongolia, CSIKI, p. 118, Zichy Ergebn. ii; *S. clementzi*, Mongolia, p. 131, *tolli*, Arctic Siberia, p. 132, *motschoulskyi*, Transbaikai, p. 133, JACOBSON, Ofv. Finska Forh. xliii : n. spp.
- Syagrus lefevrei*, Madagascar, JACOBY, p. 289, Ann. Soc. ent. Belgique xlv, n. sp.
- Thlaspidosoma* n. g. near *Thlaspidula*, p. 4, for *T. dohrni*, p. 5, *fallaciosa*, p. 7, n. spp., Sumatra, SPAETH, Ent. Zeit. Stettin lxii.
- Thlaspidula* n. g. near *Thlaspidula*, for *T. fimbriata* n. sp., Borneo, SPAETH, p. 9, t. c.
- Timarcha splendida* Per. is var. of *marginicollis*, WEISE, p. 334, Deutsche ent. Zeitschr. 1901.
- Titubæa lefevrei*, Africa, JACOBY, p. 229, Tr. ent. Soc. London 1901, n. sp.
- Trichostola grandis*, p. 239, Madagascar, *rugulosa* Bourbon, p. 240, FAIRMAIRE, Rev. Ent. franc. xx, n. spp.
- Uroplata tibialis*, Colombia, KOLBE, p. 483, pl. vii, fig. 8, Berlin. ent. Zeitschr. xlvii, n. sp.
- Xanthophysca* n. g. near *Blepharida*, for *X. perrieri* n. sp., Madagascar, p. 242, FAIRMAIRE, Rev. Ent. franc. xx.

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- Anadastus distinguendus*, Sumatra, GORHAM, p. 175, Ent. Zeit. Stettin lxii.
- Aulacochilus moensisus*, Ceram, p. 184, *dohrni*, Sumatra, p. 186, GORHAM, t. c., n. spp.
- Callilanguria dohrni*, Sumatra, GORHAM, p. 171, t. c., n. sp.
- Cyrtomorphus histeroides*, Sumatra, GORHAM, p. 187, t. c., n. sp.
- Cyrtotriplax sibirica* is var. of *subbasalis*, var. n. *subtransversa*, REITTER, p. 58, Wien. ent. Zeit. xx.
- C. arridens*, Sumatra, GORHAM, p. 189, Ent. Zeit. Stettin lxii, n. sp.
- Dacne capensis*, nomenclature, GORHAM, p. 365, Ann. Nat. Hist. vii.
- Episcaphula picturata*, Mashonaland, GORHAM, p. 362, t. c.; *E. dohrni*, Sumatra, p. 181, *duvivieri*, India etc., p. 182, GORHAM, Ent. Zeit. Stettin lxii, n. spp.
- Helota margarethæ*, p. 27, *krugeri*, p. 29, British Bhotan, RITSEMA, Notes Leyden Mus. xxii, n. spp.
- Micrencaustes sexpustulata*, Sumatra, GORHAM, p. 178, Ent. Zeit. Stettin lxii, n. sp.
- Pachylanguria metasternalis* ♂, GORHAM, p. 170, t. c.
- Paracladoxena sanguinalis*, Sumatra, GORHAM, p. 177, t. c., n. sp.
- Promecolanguria natalensis*, Natal, GORHAM, p. 362, Ann. Nat. Hist. vii, n. sp.
- Tetralanguria elongata*, variation, GORHAM, p. 170, Ent. Zeit. Stettin lxii.
- Triplacidea* n. g. type *Triplax motschulskyi* Cr., p. 191, with *T. cingalensis*, Ceylon, p. 192, *sumatrensis*, Sumatra, *hæmorrhœa*, Borneo, p. 193, n. spp., GORHAM, t. c.

- Triplax*: table of palæarctic, REITTER, pp. 73-76, Wien. ent. Zeit. xx; *T. vittipennis*, genus queried, GORHAM, p. 364, Ann. Nat. Hist. vii.
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- [Cf. CSIKI (305, 306), FALL (434), GORHAM (568, 568A), REITTER (1137).]
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Ediarthrus natalensis, sexes, GORHAM, p. 401, Ann. Nat. Hist. vii.

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- [Cf. GORHAM (568, 568A), MÜLLER (954), PENECKE (1006), PIC (1049), REITTER (1137), SCHRÖDER (1232), SCUDDER (1254), WEISE (1468, 1475, 1476).]
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- Hippodamia rickmersi*, Buchara, WEISE, p. 281, Ann. Soc. ent. Belgique xlv, n. sp.
- Lithophilus anatolicus*, Anatolia, p. 81, *grandis*, Palestine, p. 82, Pic, Echange xvii, n. spp.
- Lotis bipunctiger*, Mashonaland, GORHAM, p. 412, Ann. Nat. Hist. vii, n. sp.
- Neda* n. sp., Ecuador, KOLBE, p. 485, pl. vii, fig. 9, Berlin. ent. Zeitschr. xlv.
- Ortalia wallacei* referred to *Rhynchortalia*, WEISE, p. 285, Ann. Soc. ent. Belgique xlv.
- O. pectoralis*, Assam, id. t. c.; *O. dohrni*, Sumatra, GORHAM, p. 210, Ent. Zeit. Stettin lxii : n. spp.
- Pelina geometrica*, Bolivia, WEISE, p. 282, Ann. Soc. ent. Belgique xlv, n. sp.
- Platynaspis obscura*, Natal, GORHAM, p. 412, Ann. Nat. Hist. vii ; *P. weyersi*, Sumatra, WEISE, p. 92, Ann. Soc. ent. Belgique xlv : n. spp.
- Propiptus* n. g. *Scymni*, p. 95, for *P. subopacus* n. sp., Sumatra, p. 96, WEISE, t. c.
- Pullus saginatus*, Africa, WEISE, p. 285, t. c.; *P. clavareauvi*, *impiger*, Sumatra, WEISE, p. 94, t. c. : n. spp.
- Rodolia rufopilosa* = (*rovelundi* Cr.) WEISE, p. 93, t. c.
- R. punctigera*, Sumatra, *andamanica*, Andaman islands, WEISE, p. 93, t. c. n. sp.
- Scymnus apetzi* varr. n. *quadriguttatus confuens*, MÜLLER, p. 515, Verh. Ges. Wien li; *S. ater*, larva, WEISE, p. 90, Deutsche ent. Zeitschr. 1901.
- S. (Pullus) subinctus*, Sumatra, GORHAM, p. 210, Ent. Zeit. Stettin lxii, n. sp.
- Sidis relictus*, Sumatra, WEISE, p. 96, Ann. Soc. ent. Belgique xlv, n. sp.
- Solanophila 4-guttata* ♂ characters, p. 275, *occidentalis* var. n. *16-maculata*, p. 278, *calisto* var. *fibulata*, *sahlbergi* var., p. 279, WEISE, t. c.
- S. togöensis*, p. 273, *hintzi*, *ovata*, p. 274, *discrepens*, p. 275, with varr. *nguelensis*, *consita*, p. 276, *gentilis* and var. *contraria*, p. 277, Africa, WEISE, t. c., n. spp.
- Toxotoma rugulosa*, Peru, WEISE, p. 273, t. c., n. sp.

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- Orthoperus acariformis*, Turkestan, REITTER, p. 70, Deutsche ent. Zeitschr. 1901, n. sp.

(B.) HYMENOPTERA.

Nomenclature of wing-nervures, ROBERTSON, Science xi, p. 112.

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"Constancy" in visiting flowers, PLATEAU (1067).

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Early processes of development in fertilised and unfertilised eggs, PETRUNKEWITSCH (1027).

Production of honey in ancient Egypt, DODEKIND (362).

Aglaopis n. g. *Stelidide* for *A. brevipennis* n. sp., Bombay, CAMERON, p. 263, Entomologist xxxiv.

Andrena: synonymy of N. American, MORICE & COCKERELL, pp. 123, 124, 149-155, Canad. Ent. xxxiii; *A. vicina*, *viola*, *bicolor*, burrows, SMITH, pp. 37-39, J. N. York Ent. Soc. ix.

A. helvola and *ambigua* queried as one, MORICE, p. 4, Ent. Mag. xxxvii.

A. krigiana, Illinois, ROBERTSON, p. 229, Canad. Ent. xxxiii; *A. carlini* (= *bicolor* Rob. nec Fabr.), p. 150, *cupreotincta*, p. 153, *pluvialis anogre*, p. 154, N. America, COCKERELL, Canad. Ent. xxxiii; *A. birt-*

- welli*, p. 283, *merriami*, *washingtoni*, p. 284, N. America, COCKERELL, Psyche ix; *A. brasiliensis*, Brazil, VACHAL, p. 77, Ann. Soc. ent. France lxx : n. spp.
- Anthidium binghami*=(*fraternum* Bingh.), FRIESE, p. 224, Zeitschr. Hym. Dipt. i.
- Anthophora catalinae*, California, COCKERELL, p. 297, Canad. Ent. xxxiii, n. sp.
- Anthophoroides* n. g. type *A. vallorum*, COCKERELL & COCKERELL, p. 48, Ann. Nat. Hist. vii.
- Anthrena csikiana*, Siberia, MOCSÁRY, p. 165, Zichy Ergebn. ii; *A. knuthiana*, California, COCKERELL, p. 80, Zeitschr. Hym. Dipt. i : n. spp.
- Apis mellifera* nec *mellifica*, Fox, p. 285, Ent. News Philad. xii.
- Augochlora humeralis*, habits, burrows, life-history, fossorial structures, SMITH, pp. 52-72, pls. iii, iv, v, J. N. York Ent. Soc. ix.
- A. coloradensis*, p. 132, *cleomis*, p. 135, TITUS, Canad. Ent. xxxiii; *A. callichroma*, p. 221, *beatissima*, p. 222, Brazil, COCKERELL, P. Ac. Philad. liii : n. spp.
- Bombus*: notes on habits, LIE-PETTERSEN (846); *B. cayennensis*, nest, SCHULZ, pp. 361 & 762, Verh. Ges. Wien li; Two species in one nest, HÖPPNER, pp. 132, 133, Allg. Zeitschr. Ent. vi; Destruction by parasites, JACOB, p. 293, Feuille Natural. xxxi, FRIONNET, op. cit. xxxii, p. 23, and C. M., p. 41; *B. smithianus* var. n. *pallidus*, EVANS, p. 47, Ent. Mag. xxxvii.
- Caupolicana gaullei*, Brazil, VACHAL, p. 78, Ann. Soc. ent. France lxx, n. sp.
- Centris*: taxonomy, COCKERELL & COCKERELL, p. 47, Ann. Nat. Hist. vii.
- Centris*: monograph, FRIESE, Ann. Hofmus. Wien xv. The new subgenera are *Melanocentris*, *Cyanocentris*, *Pacilocentris* and *Rhodocentris*, p. 244: the following are new names for species: *rufohirta* p. 299 for *fulviventris* Mocs., *fasciatella* p. 332 for *fasciata* Sm., and on p. 350, *foxi* for *atriventris* Fox, *gracilis* for *elegans* Sm., *variabilis* for *Epicharis maculata* Sm., *pandora* for *zonata* Mocs., *flaviventris* for *E. bicolor* Sm., *baccharis* for *E. cockerelli* Fr.
- C. buchwaldi*, Ecuador, *burgdorfi*, Paraguay, FRIESE, p. 346, Ann. Hofmus. Wien xvi, n. spp.
- Ceratina neomexicana*, N. America, COCKERELL, p. 43, Ent. News Philad. xii, n. sp.
- Chelostomoides* n. g. for *Megachile rufimanus* Rob., ROBERTSON, p. 231, Canad. Ent. xxxiii.
- Chrysopheon* n. g. near *Dioxys* for *C. aurifuscus* n. sp., Colorado, TITUS, p. 256, Canad. Ent. xxxiii.
- Colletes compacta*, habits, burrows, SMITH, pp. 30-36, J. N. York Ent. Soc. ix.
- C. clypeatus*, Siberia, MOCSÁRY, p. 165, Zichy Ergebn. ii, n. sp.
- Conanthalictus* subg. n., cf. *Halictus*.
- Corynura jucunda* Sm.=(*enigma* Grib.), COCKERELL, p. 220, P. Ac. Philad. liii.
- C. atromarginata*, p. 217, *pseudobaccha*, *semimarginata*, *chapadicola*, p. 219, *C. (Corynuropsis* subg. n.), p. 220, *sublata*, p. 221, Brazil, COCKERELL, t. c., n. spp.
- Corynuropsis* subg. n. cf. *Corynura*.
- Ctenoapis* n. g. near *Panurgus*, p. 116, for *C. lutea*, *flavomaculata*, p. 117, n. spp., E. India, CAMERON, Ann. Nat. Hist. viii.
- Cyanocentris* subg. n. cf. *Centris*.
- Diadasia rinconis* subsp. n. *opuntiae*, COCKERELL, p. 286, Canad. Ent. xxxiii.

- Dianthidium*: measurements of palpi, COCKERELL & COCKERELL, p. 50, Ann. Nat. Hist. vii.
- Epeolus lectoides*, Illinois, ROBERTSON, p. 231, Canad. Ent. xxxiii, n. sp.
- Epicharis duckei*, Pará, FRIESE, p. 345, Ann. Hofmus. Wien xv, n. sp.
- Eucera difficilis*, nests, young, HÖPPNER, pp. 33-35, Allg. Zeitschr. Ent. vi ;
E. longicornis, confusion of nomenclature, MORICE, p. 97, Ent. Mag. xxxvii.
- Eucerini*: taxonomy, COCKERELL & COCKERELL, p. 49, Ann. Nat. Hist. vii.
- Halictus monstrosus*=(*kriegeri*), ALFKEN, p. 369, Zeitschr. Hym. Dipt. i.
- H. soror*, Majorca, SAUNDERS, p. 209, Ent. Mag. xxxvii ; *H. truncatus*, N. America, ROBERTSON, p. 230, Canad. Ent. xxxiii ; *H. (Conanthalictus* subg. n.) *conanthi*, New Mexico, COCKERELL, p. 208, Ent. News Philad. xii ; *H. peraltus*, New Mexico, COCKERELL, p. 164, Psyche ix ; *H. virgatellus*, p. 284, *hemimelas*, *dusiphore*, p. 285, *veganus*, p. 286, New Mexico, COCKERELL, t. c. ; *H. (Agapostemon)* *sicheli*, Mexico, p. 76, *H. (Rhopalictus)* *buyssoni*, Peru, p. 78, VACHAL, Ann. Soc. ent. France lxx : n. spp.
- Koptorthosoma* and *Acari*, SHELFORD, p. 690, Rep. Brit. Ass. 1901, cf. *Xylocopa*.
- Megachile steloides* Bingh. referred to *Anthidium*, ♂ described, FRIESE, p. 224, Zeitschr. Hym. Dipt. i.
- M. lucidula*, Siberia, MOCSÁRY, p. 167, Zichy Ergebn. ii ; *M. aurivillii*, p. 69, *cærulea*, p. 70, *wahlbergi*, p. 71, *sjoestedti*, p. 72, Africa, *arabica*, Arabia, p. 71, FRIESE, Zeitschr. Hym. Dipt. i ; *M. erythropoda*, Singapore, p. 34, *frederici*, Kuala Aring, *bicanaliculata*, Borneo, p. 35, CAMERON, P. Z. S. 1901, ii ; *M. megistia*, p. 244, *othona*, New Britain, *malayana*, New Guinea, p. 245, CAMERON, op. cit. i : n. spp.
- Melanocentris* subg. n. cf. *Centris*.
- Melecta armata*, *luctuosa*, habits, MORICE, p. 96, Ent. Mag. xxxvii.
- Melipona fulvipes*, nest, sexes, DU BUYSSON, pp. 153-156, pls. iv, v, Ann. Soc. ent. France lxx ; *M. fulvipes*, sexes, pp. 104, 105, *M. lineata* ♀, p. 106, DU BUYSSON, Bull. Mus. Paris 1901.
- M. personatella*, California, COCKERELL, p. 297, Canad. Ent. xxxiii ; *M. cnic*, p. 230, *trinodis*, p. 231, N. America, ROBERTSON, Canad. Ent. xxxiii : n. spp.
- Monumetha argentifrons*=(*borealis*), COCKERELL, p. 336, Ann. Nat. Hist. vii.
- Osmia* ; maxillary palpi, TITUS, p. 257, Canad. Ent. xxxiii ; ♂ 7th ventral ; synonymical note on *difformis* and allies, p. 176, MORICE, Tr. ent. Soc. London 1901, pp. 161-164 ; *O. rufa*, nest, OUDEMANS, p. 180, cut, Allg. Zeitschr. Ent. vi ; *O. solskyi*, nest, NIELSEN, p. 308, Allg. Zeitschr. Ent. vi ; *O. armaticeps* var. n. *sapellonis*, COCKERELL, p. 336, Ann. Nat. Hist. vii.
- O. corsica*, Corsica, FERTON, p. 61, Bull. Soc. ent. France 1901 ; *O. manicata*, Algeria, *romana*, Rome, p. 176, *labellifera*, *libanensis*, Syria, p. 177, MORICE, Tr. ent. Soc. London 1901 ; *O. foxi*, New Mexico, CAMERON, p. 316, Tr. Amer. ent. Soc. xxvii : n. spp.
- Nomada roberjeotiana tormentillæ* subsp. n., ALFKEN, p. 221, Zeitschr. Hym. Dipt. i ; *N. lineola* var. n. *sibirica*, MOCSÁRY, p. 167, Zichy Ergebn. ii ; *N. zonata* and *rhenana*, relations, ALFKEN, p. 363, Zeitschr. Hym. Dipt. i.
- N. poultoni*, Majorca, SAUNDERS, p. 209, Ent. Mag. xxxvii ; *N. quadri-spinosa*, p. 168, *zichyana*, p. 169, Russia, MOCSÁRY, Zichy Ergebn. ii : n. spp.
- Nomia fulviventris*, p. 246, *N. (Paranomia) pulchribalteata*, *N. metallica*, p. 247, New Britain, CAMERON, P. Z. S. 1901, i, n. spp.
- Panurginus verus*, New Mexico, COCKERELL, p. 163, Psyche ix, n. sp.

- Panurgus pyropygus*, p. 107, Syria, *dentatus*, p. 112, Egypt, FRIESE, *Ap. europ.* vi, n. spp.
- Paralictus* n. g., type *Halictus cephalicus*, p. 229, with *P. simplex* n. sp., Illinois, p. 230, ROBERTSON, *Canad. Ent.* xxxiii.
- Paranthidium* subg. n. [? of *Anthidium*], COCKERELL & COCKERELL, p. 50, *Ann. Nat. Hist.* vii.
- Pasiphaë bouvieri*, *boliviensis*, S. America, VACHAL, p. 79, *Ann. Soc. ent. France* lxx, n. spp.
- Perdita claypolesi*, p. 281, *rhois*, p. 282, California, COCKERELL, *Canad. Ent.* xxxiii, n. spp.
- Pæcilocentris* subg. n. cf. *Centris*.
- Prosopsis*; notes on N. American, with list, LOVELL, pp. 4-9, *Ent. News Philad.* xii; N. American, synonymy, ROBERTSON, p. 77, *Ent. News Philad.* xii; *P. zizæ*, and *affinis* and *modesta*, synonymy, LOVELL, p. 162, *Ent. News Philad.* xii; *P. kriechebaumeri*, nesting-habits, HÖPPNER, pp. 291-293, *Allg. Zeitschr. Ent.* vi.
- P. polifolii*, California, COCKERELL, p. 281, *Canad. Ent.* xxxiii; *P. scrobicauda*, p. 79, *aspricollis*, *stilbaspis*, *fissa*, *breviradia*, p. 80, *palmaris*, *arsenica*, p. 81, *cribellata*, *atripes*, p. 82, S. America, VACHAL, *Ann. Soc. ent. France* lxx : n. spp.
- Protanthidium* gen. n. type *Megachile steloides* Bingh., COCKERELL & COCKERELL, p. 49, *Ann. Nat. Hist.* vii.
- Rhodocentris*, subg. n. cf. *Centris*.
- Sphécodes*; habits, GARDNER, p. 127, *Ent. Mag.* xxxvii; Relations with *Halictus* and *Andrena*, MORICE (1937).
- S. antigæ*, Barcelona, TOURNIER, p. 258, *Bol. Soc. espan. i*, n. sp.
- Stelis permaculata*, valid species, COCKERELL, p. 337, *Ann. Nat. Hist.* vii.
- Temnosoma metallicum* var. n. *chapudæ*, COCKERELL, p. 217, *P. Ac. Philad.* liii.
- Triepeolus* n. g. for part of *Epeolus*, type *concarvus* Cr., ROBERTSON, p. 231, *Canad. Ent.* xxxiii.
- Trigona capitata* var. n. *virgilii*, p. 268, *T. pallida* var. n. *nigrita*, p. 269, FRIESE, *Zeitschr. Hym. Dipt.* i; *T. lineata*, nest, DU BUYSSON, p. 155, *Ann. Soc. ent. France* lxx.
- T. testaceitarsis*, Malay Penins., CAMERON, p. 36, *P. Z. S.* 1901, ii; *T. subterranea*, *peckolti*, p. 265, *schultzei*, p. 266, *dutræ*, p. 267, *fraisei*, *huberi*, p. 268, *lehmanni*, *nigripes*, p. 270, S. America, *keyensis*, Key Ids., p. 271, FRIESE, *Zeitschr. Hym. Dipt.* i : n. spp.
- Xylcopa*; revision; the symbiosis with Acari, PÉREZ, *Act. Soc. Bordeaux* lvi; *X. tranquebaricus* Fabr. as *Bombus* (= *rufescens* auct.), SCHULZ, p. 273, *Zeitschr. Hym. Dipt.* i.
- X. malayana*, Singapore, *ceylonica*, Ceylon, p. 32, *grandiceps*, Singapore, p. 33, CAMERON, *P. Z. S.* 1901, ii; *X. perkinsi*, New Britain, CAMERON, p. 243, op. cit. i; *X. morawitzi*, Turkestan, p. 16, *erivanensis*, Erivan, p. 19, *uclesiensis*, Spain, p. 22, *cribrata*, Assinia, p. 24, *athiopica*, Abyssinia, p. 26, *distinguenda*, Sierra Leone, p. 30, *sycophanta*, *caloptera*, E. Africa, p. 34, *confusa*, Africa, p. 39, *fuliginata*, Mindanao, p. 41, *attenuata*, Shanghai, p. 46, *insidiosa*, Celebes, p. 53, *amauroptera*, p. 54, *sulcifrons*, p. 55, Palawan, *confusa*, Java, p. 57, *vachali*, p. 60, *euchlora*, p. 61, Palawan, *ocularis*, Timor, p. 62, *eunota*, Aru, p. 63, *adusta*, *occipitalis*, p. 65, Mindanao, *alternata*, Celebes, p. 66, *cavicornis*, Uruguay, p. 70, *binotata*, Chiriqui, p. 72, *subcayana*, Brazil, p. 74, *mastrucata*, Venezuela, p. 85, *eximia*, Bolivia, p. 87, *ocellaris*, p. 90, *nasica*, p. 91, *columbiensis*, p. 94, Chiriqui, *transitoria*, Argentina, p. 95, *nigrocaudata*, Surinam, p. 107, *amblardi*, California, p. 115, *singularis*, Mexico, p. 116, PÉREZ, *Act. Soc. Bordeaux* lvi : n. spp.

MASARIDÆ.

Paramasaris n. g., p. 311, for *P. fuscipennis* n. sp., p. 312, New Mexico, CAMERON, Tr. Amer. ent. Soc. xxvii.

VESPIDÆ, EUMENIDÆ.

[Cf. ANGLAS (25), ASHMEAD (42), BARRINGTON & MOFFAT (74), CAMERON (201, 202), FERTON (454), OUDEMANS (994), PERKINS (1018, 1021), ROBERTSON (1172), RUDOW (1193), WALKER (1428).]

Habits and instinct of various European *Vespidæ*, associations of *Polistes*, nests and egg of *Eumenes*, parasites, FERTON, Ann. Soc. ent. France lxx, pp. 128-139.

The nests of *Vespidæ*, RUDOW (1193); Remarkable nest of *V. vulgaris*, OUDEMANS (994).

Ancistrocerus sexcingulatus, New Mexico, COCKERELL, p. 185, Psyche ix, n. sp.

Icaria leptogaster, p. 29, Malay Penins., *sulciscutis*, Singapore, p. 30, CAMERON, P. Z. S. 1901, ii, n. spp.

Nesodynerus n. g. for *N. optabilis* n. sp., Oahu, PERKINS, p. 267, Ent. Mag. xxxvii.

Odynerus aurantiacus, sexes, MOCSÁRY, p. 164, Zichy Ergebn. ii.

O. punctuosus, Vivario, FERTON, p. 130, Ann. Soc. ent. France lxx; *O. mephitus*, Ceylon, CAMERON, p. 30, P. Z. S. 1901, ii; *O. bicornis*, *bifurcus*, p. 198, *histrionalis*, *clypeatus*, p. 199, *floridanus*, *apopkensis*, *fundatiformis*, *australis*, p. 200, *oculeus*, p. 201, *illinoensis*, *zendaloides*, p. 202, N. America, ROBERTSON, Tr. Amer. ent. Soc. xxvii; *O. paludicola*, p. 265, *homoxophanes*, *eucharis*, *xerophilus*, p. 266, *lithophilus*, *acyaneus*, *epipseustes*, *illudens*, p. 267, Hawaiian islands, PERKINS, Ent. Mag. xxxvii : n. spp.

Polistes gallica, variation, removal of sting, D. E., p. 180, and Revue p. 21, Rev. Lapok viii.

P. arthuri, p. 241, *lycus*, p. 242, *asterope*, p. 243, New Britain, CAMERON, P. Z. S. 1901, i, n. spp.

Pseudopterocheilus n. g. type *Odynerus pterocheiloides*, PERKINS, p. 266, Ent. Mag. xxxvii.

Rhynchium taprobanæ, Ceylon, CAMERON, p. 31, P. Z. S. 1901, ii, n. sp.

Vespa : relative numbers of the species found in Wicklow, BARRINGTON & MOFFAT, Irish Natural. x, pp. 197-201; *V. austriaca* ♂, PACK-BERESFORD, p. 195, Irish Natural. x.

HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

[Cf. ANDRÉ (19-23), ANGLAS (25), ASHMEAD (40, 42), BAER (58), CAMERON (201, 202, 206, 209), COCKERELL (259, 262), DE STEFANI (334), DUCKE (377), ENDERLEIN (409-411), FERTON (454), FOX (483, 484), HANDLIRSCH (598-601), KOHL (767-770), MANTERO (875), MARCHAND (877), MOCSÁRY & SZÉPLIGETI (924), NIELSEN (971), PÉRINGUEY (1016), ROBERTSON (1172), RUDOW (1193), SAUNDERS (1205), SEURAT (1278), TOURNIER (1374), VIERECK (1419).]

Habits of numerous European Fossors, food, oviposition, FERTON, pp. 98-125, Ann. Soc. ent. France lxx.

Habits of *Pemphredon* and *Psen*, NIELSEN, pp. 307, 308, Allg. Zeitschr. Ent. vi.

The nests of fossorial *Hym.*, RUDOW (1193).

Mutillid with venomous sting, "*Iaula*," BAER, pp. 180, 181, Bull. Soc. ent. France 1901.

- Alyson flavomaculatus*, New Mexico, CAMERON, p. 314, Tr. Amer. ent. Soc. xxvii, n. sp.
- Ammophila* (*Parapsammophila*) *gigantea*, p. 142, *unguicularis*, *litigiosa*, p. 143, Africa, *A. cernulans*, Korea, p. 144, *dolichostoma*, Arabia, p. 146, *errabunda*, E. Africa, *algira*, Biskra, p. 147, *celebs*, Egypt, p. 148, *A. (Coloptera) judaeorum*, Jericho, p. 149, *A. assimilis*, Syria, p. 150, *sickmanni*, N. China, p. 151, *adelpa*, Turkestan, p. 152, *electa*, Tunis, p. 155, *erminea*, N. Africa, Aden, p. 156, *divina*, hab. ?, p. 157, *induta*, Buchara, p. 158, *dubia*, Egypt etc., p. 159, *A. (Psammophila) pungens*, Saissan, p. 161, *minax*, Egypt, p. 162, *flavida*, Mongolia, p. 163, KOHL, Ann. Hofmus. Wien xvi, n. spp.
- Apterogyna cybele* ♂, PÉRINGUEY, p. 128, Ann. S. Afric. Mus. ii.
- A. minaticornis*, Delagoa bay, ENDERLEIN, p. 210, Arch. Naturg. Lxvii, n. spp.
- Barymutilla* subg. n. cf. *Mutilla*.
- Brachymutilla* subg. n. cf. *Mutilla*.
- Bembex rostrata*, habits, MARCHAND, Bull. Soc. Ouest France, pp. 247–250; Larva, tracheal system, SEURAT (1278).
- B. lactea*, N. India, p. 25, *borneana*, Borneo, p. 26, CAMERON, P. Z. S. 1901, ii; *B. beutenmulleri*, California, Fox, p. 83, J. N. York ent. Soc. ix : n. spp.
- Brachycistis gaudii*, California, COCKERELL, p. 340, Canad. Ent. xxxiii, n. sp.
- Cerceris borealis*, *frigida*, Siberia, MOCSÁRY, p. 161, Zichy Ergebn. ii, n. spp.
- Chrysolaria* n. g. near *Tachytes*, for *C. appendiculata*, p. 118, *aureosericea*, p. 119, E. India, *japonica*, Japan, p. 120, *pruinosa*, Borneo, p. 121, CAMERON, Ann. Nat. Hist. viii, n. spp.
- Crabro* (*Thyreopus*) *cribrarius* var. n. *inornatus*, MOCSÁRY, p. 163, Zichy Ergebn. ii; *C. distinctus* Smith = (*notostictus* Perk.) PERKINS, p. 264, Ent. Mag. xxxvii; *C. capitosus* food of young, BAER, p. 162, Allg. Zeitschr. Ent. vi.
- C. impetuosus*, Singapore, CAMERON, p. 28, P. Z. S. 1901, ii; *C. (Corynopus) heterocerus*, Patagonia, MANTERO, p. 201, Bull. Soc. ent. Ital. xxxiii : n. spp.
- Dasylabroides* subg. n. cf. *Mutilla*.
- Diodontus*; table of palæarctic species, KOHL, pp. 127–133, pl. ii, Verh. Ges. Wien li.
- D. friesei*, Ivizza, p. 121, *temporalis*, Palestine, p. 122, *major*, Austria, *moricei*, Egypt, p. 125, KOHL, t. c. n. spp.
- Discolia foveifrons*, p. 236, *pulchripennis*, p. 237, New Britain, CAMERON, P. Z. S. 1901, i, n. spp.
- Elis* (*Dielis*) *aglaea*, Malay Penins., CAMERON, p. 19, op. cit. ii, n. sp.
- Gorytes aglaia* ♂, *thalia* ♂, HANDLIRSCH, p. 427, Verh. Ges. Wien li; *G. niger* ♀, MORICE, p. 362, Zeitschr. Hym. Dipt. i.
- G. braunsii*, Delagoa Bay, HANDLIRSCH, p. 429, Verh. Ges. Wien li; *G. imitator*, p. 351, *mimetes*, p. 352, *bergii*, p. 354, *foxii*, p. 355, Brazil, HANDLIRSCH, t. c., n. spp.
- Harpactes sanguinans*, S. America, DOMINIQUE, p. 513, pl. vii, Bull. Soc. Ouest France (2), i, n. sp.
- Homonotus ibex* ♀ = (*Salix petiolaris* Sauss.), ENDERLEIN, p. 151, Ent. Zeit. Stettin lxii.
- Magrettina* n. g. for *Meria nocturna* Mor., ASHMEAD, p. 444, P. ent. Soc. Washington iv.
- Methoca braunsi*, p. 281, *minima*, p. 282, S. Africa, ANDRÉ, Zeitschr. Hym. Dipt. i; *M. procera*, Transvaal, PÉRINGUEY, p. 127, Ann. S. African Mus. ii : n. spp.
- Mimesa striatus*, p. 339, *johnsoni*, p. 340, *ferruginea*, p. 341, N. America, VIERECK, Tr. Amer. ent. Soc. xxvii, n. spp.

- Monedula* replaced by *Stictia*, Fox, p. 269, Ent. News Philad. xii; *M. medeu* ♂, DUCKE, p. 242, Zeitschr. Hym. Dipt. i.
- Mutilla binitata* var. n. *rubroguttata*, ANDRÉ, p. 257, Zeitschr. Hym. Dipt. i; *E. autonoe* is *merope* ♂, *atropos* Sm. = (*artemis*ia Pér.), *saga* n. n. for *cyllene* Pér., PÉRINGUEY, p. 132, Ann. S. African Mus. ii; *M. montana* ♂ variation, SAUNDERS, p. 529, Tr. ent. Soc. London, 1901.
- M. (Dasylabris) phrygia*, p. 128, *M. nais*, p. 129, *camilla*, p. 130, *M. (Dasylabris) mashuna*, *M. zoe*, p. 131, S. Africa, PÉRINGUEY, Ann. S. African Mus. ii; *M. sareptana*, Europe, 246, *curtiventris*, Asia Minor, p. 269, ANDRÉ, Spec. Hym. viii; *M. consobrina*, p. 137, *cyanogastra*, p. 139, *sancta-marie*, p. 140, *aurolimbata*, p. 142, *M. (Stenomutilla) eumenoides*, p. 143, Madagascar, ANDRÉ, Zeitschr. Hym. Dipt. i; *M. (Tricholabiodes) signatipennis*, p. 285, *M. (Brachymutilla) subg. n.*, p. 287, *androgyna*, p. 287, *gynandromorpha*, p. 305 (*Dasylabroides* subg. n. p. 307, for *capensis* Sauss.), *M. (Dasylabris) affinis*issima, p. 311, *inflata*, p. 313, *quinqnotata*, p. 318, *M. (Stenomutilla) acuticollis*, p. 321, *M. (Rhopalomutilla) subg. n.*, p. 323, *clavicornis*, p. 323, *M. (Nanomutilla) microsoma*, p. 326, *M. (Odontomutilla) argenteoguttata*, p. 331, *M. (Barymutilla) subg. n.*, p. 334, *M. idonea*, p. 341, *metella*, p. 343, *marcella*, p. 345, *subfasciata*, p. 348, *rufescens*, p. 351, S. Africa, ANDRÉ, t. c.; *M. malayana*, p. 16, *skeati*, p. 17, Malay Penins., CAMERON, P. Z. S. 1901, ii; *M. bivulnerata*, p. 470, *abjecta*, p. 471, *sessilis*, p. 473, *addenda*, p. 474, *difficilis*, p. 475, *sosiana*, p. 477, *cenea*, p. 478, *mackayensis*, p. 481, *meranoploides*, p. 482, *pallidiventris*, p. 484, *cyaneiceps*, p. 485, *cyaneidorsis*, p. 487, *cemula*, p. 488, *afflicta*, p. 490, *quadrinignata*, p. 491, *letabilis*, p. 494, *interjecta*, p. 496, *obscuriceps*, p. 499, *caliginosa*, p. 501, *adjacens*, p. 502, *dentifrons*, p. 504, Australia, ANDRÉ Mem. Soc. zool. France xiv; *M. novobritannica*, New Britain, CAMERON, p. 235, P. Z. S. 1901, i; *M. (Ephuta) alacris*, p. 258, *M. (Photopsis) paraguayensis*, p. 260, Paraguay, *M. (Scaptodactyla) levissima*, p. 261, *crinita*, p. 263, Patagonia, ANDRÉ, Zeitschr. Hym. Dipt. i : n. spp.
- Mutillidae*; numerous S. African, notes on with special reference to species described by Péringuey, ANDRÉ, Zeitschr. Hym. Dipt. i, p. 279.
- Myrmilla doumerguei*, Algeria, p. 190, ANDRÉ, Spec. Hym. viii, n. sp.
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- Neoforia* n. g. for *Psen* Ashm. nec Latr., VIERECK, p. 338, Tr. Amer. ent. Soc. xxvii.
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- Nysson costae*, Oran, HANDLIRSCH, p. 510, Verh. Ges. Wien li; *N. aureobulbeatatus*, New Mexico, CAMERON, p. 313, Tr. Amer. ent. Soc. xxvii : n. spp.
- Oxæa tachytiformis*, New Mexico, CAMERON, p. 315, t. c., n. sp.
- Oxybelus maculiventris*, p. 256, *nigriventris*, p. 257, *opacus*, p. 258, Spain, TOURNIER, Bol. Soc. espan. i; *O. floridanus*, N. America, ROBERTSON, p. 203, Tr. Amer. ent. Soc. xxvii : n. spp.
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- Pison iridipennis* Sm., characters, PERKINS, p. 264, Ent. Mag. xxxvii.
- P. fuscipalpis*, Singapore, CAMERON, p. 27, P. L. S. 1901, ii, n. sp.
- Pisonopsis anomala*, Patagonia, MANTERO, p. 202, Bull. Soc. ent. Ital. xxxiii, n. sp.

- Platymyrmilla* subg. n. of *Myrmilla*, for *quinquefasciata* OL., ANDRÉ, p. 220, Spec. Hym. viii.
- Pompilus* replaced by *Anoplius*, FOX, p. 268, Ent. News Philad. xii;
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- P. capitigrassus*, Provence, p. 118, *brachycerus*, Bonifacio, p. 121, FERTON, Ann. Soc. ent. France lxx; *P. (Planiceps) hirtipennis*, p. 541, *P. (Aporus) friesei*, p. 543, *vachali*, p. 544, *P. (Evagethes) cinerascens*, p. 545, *orichalceus*, p. 546, *P. coccineipes*, *picticrus*, p. 548, *niveus*, p. 549, *sexspinosus*, p. 550, *dubitabilis*, p. 551, *fertoni*, p. 552, *excisilabris*, p. 553, *moricei*, p. 555, Algeria, SAUNDERS, Tr. ent. Soc. London 1901; *P. cnikianus*, Siberia, KOHL, p. 160, Zichy Ergebn. ii; *P. singaporensis*, Singapore, CAMERON, p. 21, P. Z. S. 1901, ii; *P. illinoensis*, N. America, ROBERTSON, p. 202, Tr. Amer. ent. Soc. xxvii; *P. silvestrii*, p. 197, *bovei*, p. 198, Patagonia, MANTERO, Bull. Soc. ent. Ital. xxxiii : n. spp.
- Psen atratus* food of young, BAER, p. 161, cut, Allg. Zeitschr. Ent. vii.
- Pseudagenia malayana*, Singapore, *arethusa*, N. India, CAMERON, p. 20, P. Z. S. 1901, ii, n. spp.
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- Salix* replaced by *Cryptocheilus*, FOX, p. 268, Ent. News Philad. xii.
- S. eatoni*, p. 557, *perezi*, p. 559, *sanguinicollis*, p. 560, Algeria, SAUNDERS, Tr. ent. Soc. London 1901; *S. miserus*, Singapore, p. 22, *taprobana*, Ceylon, *malayensis*, Kuala Aring, p. 23, CAMERON, P. Z. S. 1901, ii : n. spp.
- S. insularis*, p. 237, *basimacula*, p. 238, *willeyi*, p. 239, New Britain, CAMERON, P. Z. S. 1901, i : n. spp.
- Sapyga eatoni*, Algeria, SAUNDERS, p. 539, Tr. ent. Soc. London 1901, n. sp.
- Scolia speciosa* Sm., ♂, CAMERON, p. 18, P. Z. S. 1901, ii.
- S. (Discolia) propodealis*, p. 536, *S. (Trielis) moricei*, p. 538, Algeria, SAUNDERS, Tr. ent. Soc. London 1901; *S. lathona*, Malay Penins., CAMERON, l. c. : n. spp.
- Sphex semenowi* ♂, SEMENOW, p. 55, Rev. Russe Ent. i; Species at Pará, list, DUCKE, p. 241, Zeitschr. Hym. Dipt. i.
- S. (Isodonta) insularis*, New Britain, CAMERON, p. 240, P. Z. S. 1901, i; *S. (Priononyx) sennae*, Patagonia, MANTERO, p. 200, Bull. Soc. ent. Ital. xxxiii : n. spp.
- Steniola sulfurea*, California, FOX, p. 84, J. N. York ent. Soc. ix, n. sp.
- Stenocrabro cinctitarsis*, New Mexico, ASHMEAD, p. 185, Psyche ix, n. sp.
- Stigmus patagonicus*, Patagonia, MANTERO, p. 199, Bull. Soc. ent. Ital. xxxiii, n. sp.
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- Tachytes distinctus*, *elongatus*, synonymy, ROBERTSON, p. 203, Tr. Amer. ent. Soc. xxvii.
- Tiphia antigea*, Barcelona, p. 252, *rudepunctata*, p. 253, *longicornis*, p. 254, *vaucheri*, p. 255, Tangier, TOURNIER, Bol. Soc. espan. i; *T. floridana*, *vulgaris*, p. 195, *clypeata*, *illinoensis*, *punctata*, p. 196, N. America, ROBERTSON, Tr. Amer. ent. Soc. xxvii : n. spp.
- Trypoxylon varipilosum*, Singapore, CAMERON, P. Z. S. 1901, ii, n. sp.

FORMICIDÆ.

- [These titles relate to *Formicidæ*, viz.:—ANDRÉ (24), BRAUNS (156), DAHL (315), EMERY (401–408), FIELDE (456, 457), FOREL (472–480), JANET (686, 687), LANDQUART (810), MAYR (895), MOCSÁRY & SZÉPLIGETI (924), MORICE (938), OUDEMANS (995), PÉREZ (1007–1010), SAUNDERS (1205), THOMANN (1367), TRYON (1381), ULE (1406), WASMANN (1446–1448), WHEELER (1480–1484, 566), WHEELER & LONG (1485).]
- Classification of ants, with special reference to *Ponerinæ* and *Dorylinæ*, Emery's views, FOREL, pp. 136–141, Ann. Soc. ent. Belgique xlv : also EMERY, t. c. pp. 197, 198.
- Classification of *Ponerinæ* and *Dorylinæ*, notes on the critical genera, phylogeny, EMERY, pp. 32–37, Ann. Soc. ent. Belgique xlv.
- Formicidæ of the Bismarck Archipelago, FOREL, Mt. Mus. Berlin ii. Habits of, DAHL, t. c. Besides the habits the second also catalogues and tabulates the species, and gives a study as to their general and comparative ethology.
- General anatomy of *Myrmica*, JANET (687).
- Anatomy of sting and poison-gland of *Myrmica*, JANET (686).
- Social life of an ant, *Stenamma fulvum piceum*, FIELDE, P. Ac. Philad. liii, pp. 425–449 and 521–544.
- Macroergatism, nature and origin, WHEELER (1481).
- Notes on habits of the Mexican species described by Forel (477), WHEELER (1483).
- Symbiosis among American ants, WHEELER (1480).
- Relations of *Polyergus* and *Formica*, WASMANN, Allg. Zeitschr. Ent. p. 353 etc.
- An ant-decapitating fly in N. America, PERGANDE (1013).
- Australian harvesting ants, TRYON (1381).
- Ant-gardens in the Amazons, ULE (1406).
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- Ants introduced with plants at Hamburg, FOREL, pp. 78–82, Mt. Mus. Hamburg xviii, 2.
- Acantholepsis carbonaria* var. n. *obtusa*, EMERY, p. 63, Bull. Soc. ent. Ital. xxxiii.
- Aenictus*; supposed ♀, EMERY, Monit. Zool. ital. xi, suppl. p. 47. *Alaopone abeillei* is female of *Aenictus*, pp. 43–47 cuts, *A. marie* var. n. *natalensis*, p. 49, EMERY, Bull. Soc. ent. Ital. xxxiii.
- A. punctiventris*, Borneo, p. 47, *ricator*, Natal, p. 48, id. t. c.; *A. rotundatus*, p. 1, *steindachneri*, p. 2, S. Africa, MAYR, Ann. Hofmus. Wien xvi : n. spp.
- Aenictogiton* n. g. near *Aenictus*, for *A. fossiceps*, n. sp., Congo, EMERY, p. 49, Bull. Soc. ent. Ital. xxxiii.
- Alfaria emeryi*, Colombia, FOREL, p. 326, Rev. Suisse Zool. ix, n. sp.
- Anoctetus tulpa*, Natal, FOREL, p. 351, t. c.; *A. punctaticeps*, Cape Colony, MAYR, p. 4, Ann. Hofmus. Wien xvi; *A. agilis*, Borneo, EMERY, p. 52, Ann. Soc. ent. Belgique xlv; *A. cato*, Bismarck Archipelago, FOREL, p. 6, Mt. Mus. Berlin ii : n. spp.
- Anomma*: female, ANDRÉ, Bull. Mus. Paris vi, pp. 364–368.
- Atopomyrmex ceylonicus*, Negombo, p. 114, *nodifer*, Cameroons, p. 115, EMERY, Deutsche ent. Zeitschr. 1901, n. spp.
- Atta* (*Acromyrmex*) *nigra* r. *muticynoda* nov. st., FOREL, p. 336, Ann. Soc. ent. Belgique xlv; *A. (Acromyrmex) subterranea* ♂, *A. (Mycocepurus) goldii* var. n. *schuppi*, FOREL, p. 301, Mt. Schweiz. ent. Ges. x; *A. moelleri modesta*, n. st., FOREL, p. 49, Mt. Mus. Hamburg xviii, 2.

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- Cardiocondyla nuda* r. *mauritanica*, ♀, FOREL, p. 378, Ann. Soc. ent. Belgique xlv.
- Carebara vidua*, character and habits, worker, FOREL, pp. 392, 393, t. c.
- Cataulacus rugosus* subsp. n. *micans*, MAYR, p. 27, Ann. Hofmus. Wien xvi; *C. weismanni otii* n. st., FOREL, p. 304, Mt. Schweiz. ent. Ges. x.
- C. baumi*, p. 304, *brevisetosus*, p. 305, Mossamedes, id. t. c.; *C. brookei*, Borneo, FOREL, p. 378, Ann. Soc. ent. Belgique xlv : n. spp.
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- Cryptocerus hamulus* var. *haytianus* n. var., FOREL, p. 337, Ann. Soc. ent. Belgique xlv.
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- Dinoponera grandis*, varr. n. *lucida*, *mutica*, *longipes*, *australis*, EMERY, p. 48, Ann. Soc. ent. Belgique xlv.
- Diplomorium* n. g. near *Solenopsis*, p. 16, for *D. longipenne* n. sp., S. Africa, p. 18, MAYR, Ann. Hofmus. Wien xvi.
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- Dolichoderus patens* var. n. *karawaiiewi*, FOREL, p. 303, Mt. Schweiz. ent. Ges. x.
- Dorylus* and *Anictus*, habits, BRAUNS, pp. 14-17, Zeitschr. Hym. Dipt. i.
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- Eciton*: the males of following described, *schmitti*, p. 161, *opacithorax*, p. 163, Ent. Zeit. Stettin lxii; *E. opacithorax* ♀, t. c. p. 173; *E. cæcum kuloni* n. st., p. 47, *E. spoliator triste* n. st., p. 48, FOREL, Mt. Mus. Hamburg xviii, 2; *E. cæcum* var. n. *biloba*, p. 51, *E. morosum* subsp. n. *ursinum*, p. 52, EMERY, Bull. Soc. ent. Ital. xxxiii.
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- E. (Mictoponera* subg. n.) *diehlii*, Borneo, FOREL, p. 372, Ann. Soc. ent. Belgique xlv; *E. aztecum*, Mexico, *E. (Gnamptogenys) exaratum*, Peru, EMERY, p. 50, t. c. : n. spp.
- Emergyella* n. g. near *Ectatomma*, for *E. schmitti* n. sp., Haiti, FOREL, p. 334, t. c.
- Eumecopone* subg. n. cf. *Neoponera*.
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- L. (Lobopelta) parva*, Natal, p. 330, *hemioptica*, Sumatra, p. 331, *havilandi*, Natal, p. 332, FOREL, Rev. Suisse Zool. ix; *L. bellii*, Erythræa, EMERY, p. 59, Bull. Soc. ent. Ital. xxxiii; *L. emeryi*, Bismarck Arch., FOREL, p. 7, Mt. Mus. Berlin ii; *L. wheeleri*, Mexico, FOREL, p. 123, Ann. Soc. ent. Belgique xlv : n. spp.

- Leptothorax congruus* var. *spinosior* n. var., FOREL, p. 371, t. c.
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- Pheidologeton diversus* var. *tuprobanæ*, habits, EMERY, p. 119, Deutsche ent. Zeitschr. 1901.
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- Hemiteles rufipleuria*, sibiricus, Siberia, SZÉPLIGETI, p. 144, Zichy Ergebn. ii, n. spp.
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- I. tosquineti*, Belgium, ATHIMUS, p. 221, t. c.; *I. quitardi*, France, PIC, p. 24, Exchange xvii; *I. strenuus*, *operosus*, France, BERTHOUMIEU, p. 320, Bull. Soc. ent. France 1901; *I. pseudogracilentus*, p. 140, *xanthocnemis*, p. 141, *brunneosparsus*, p. 146, *angusteanulatus*, p. 149, *bicriatus*, p. 151, *leucomelanoides*, p. 152, *albocingulatus*, p. 154, *rufipes*, p. 158, Styria, STROBL, Mt. Ver. Steiermark xxvii; *I. annulicornis*, Siberia, SZÉPLIGETI, p. 148, Zichy Ergebn. ii; *I. pyrastis*, p. 115, *frederici*, p. 116, *richardi*, *wellingtoni*, p. 117, N. Zealand, CAMERON, Tr. N. Zealand Inst. xxxiii : n. spp.
- Idechthis oahuensis*, Hawaiian Ids., ASHMEAD, p. 355, Fauna Hawaiiensis i, n. sp.
- Idiolispa jugorum*, Styria, STROBL, p. 192, Mt. Ver. Steiermark xxxvii, n. sp.
- Ischnogaster fuscibucca*, Savoy, BERTHOUMIEU, Bull. Soc. ent. France, 1901, n. sp.
- Isurgus rufipes* var. n. 2, SZÉPLIGETI, p. 137, Zichy Ergebn. ii.
- Itopectis exareolata*, New Mexico, ASHMEAD, p. 147, Psyche ix, n. sp.
- Ktenostilpnus* n. g. near *Stilpnus*, for *K. æquearticulatus* n. sp., Styria, STROBL, p. 256, Mt. Ver. Steiermark xxxvii.
- Labium*: characters and position, CAMERON, p. 529, Ann. Nat. Hist. vii.
- Lagenesta* n. g., p. 376, for *L. ferruginea* n. sp., India, p. 377, CAMERON, t. c.
- Lamprojoppa* n. g., p. 482, for *L. cærulea* n. sp., India, p. 483, CAMERON, t. c.

- Lathrostizus insularis*, Molokai, ASHMEAD, p. 355, Fauna Hawaiiensis i, n. sp.
Leptocryptus prominens, Styria, STROBL, p. 228, Mt. Ver. Steiermark xxxvii, n. sp.
Leptojooppa n. g. *Oxygygi*, p. 279, for *L. erythrothorax* n. sp., India, p. 280, CAMERON, Ann. Nat. Hist. vii.
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Lissonota rubriplagiata, N. Zealand, CAMERON, p. 106, t. c., n. sp.
Lissonotini; notes on Schmiedeknecht's revision of the palaearctic, BRAUN, pp. 157 etc., Zeitschr. Hym. Dipt. i.
Magrettia n. g. *Joppina*, p. 480, for *M. crassispina* n. sp., India, p. 481, CAMERON, Ann. Nat. Hist. vii.
Mesochorus pectinatus, Kazan, SZÉPLIGETI, p. 143, Zichy Ergebn. ii, n. sp.
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Mesoleptus nitidithorax, Austria, STROBL, p. 54, Verh. Siebenburg Ver. 1; *M. (Hadrodactylus) barbatus*, Kazan, SZÉPLIGETI, p. 150, Zichy Ergebn. ii : n. spp.
Mesostenus albovinctus, Egypt, KRIECHBAUMER, p. 254, Zeitschr. Hym. Dipt. i, n. sp.
Meteorus fragilis bred from *Phalera bucephala*, BIGNELL, p. 278, Ent. Mag. xxxvii.
Metopius dentatus bred from *Bombyx quercus*, BIGNELL, p. 171, t. c.
Microcryptus xanthostigma, Kazan, SZÉPLIGETI, p. 145, Zichy Ergebn. ii; *M. rufithorax*, p. 209, *rufidorsum*, p. 210, Styria, STROBL, Mt. Ver. Steiermark xxxvii : n. spp.
Myermo n. g. *Heresiarchini*, p. 523, for *M. rufipes* n. sp., India, p. 524, CAMERON, Ann. Nat. Hist. vii.
Nepiesta nigra, Kazan, SZÉPLIGETI, p. 139, Zichy Ergebn. ii, n. sp.
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Oliphorus affinis, New Mexico, ASHMEAD, p. 148, Psyche ix, n. sp.
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Plectiscus brevicaudatus, Austria, STROBL, p. 69, Verh. Siebenburg. Ver. 1, n. sp.
Plectrocryptus albolineatus, Styria, STROBL, p. 205, Mt. Ver. Steiermark xxxvii, n. sp.

- Pleuroneurophion hawaiiensis*, Hawaii, ASHMEAD, p. 342, Fauna Hawaiiensis i, n. sp.
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Polyblastus elegans, Siberia, SZÉPLIGETI, p. 149, Zichy Ergebn. ii, n. sp.
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Sarntheinia n. n. for *Laphyctes* Först., DALLA TORRE, p. 52, Wien. ent. Zeit. xx.
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Syzeuctus hyalinipennis, Siberia, SZÉPLIGETI, p. 143, Zichy Ergebn. ii, *S. schmiedeknechti*, Switzerland, BRAUNS, p. 182, Zeitschr. Hym. Dipt. i : n. spp.
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SZÉPLIGETI tabulates the palaearctic genera allied to *Bracon* and their species, Potfuz. Termes. Kozl. xxxiii, pp. 175 etc.
Braconida of S. Devou and hosts, BIGNELL (108).

- Apanteles similis*, Kazan, p. 151, *xanthocarpus*, *gladiator*, Siberia, p. 152, SZÉPLIGETI, Zichy Ergebn. ii, n. spp.
- Aphidius nigripes*, Adirondacks, ASHMEAD, p. 588, Bull. N. York Mus. 47, n. sp.
- Aspilota konae*, Hawaii, ASHMEAD, p. 359, Fauna Hawaiensis i, n. sp.
- Atanycolus signatus*, Hungary, SZÉPLIGETI, p. 176, Potfuz. Termes. Kozl. xxxiii, n. sp.
- A. luteus*, Moluccas, SZÉPLIGETI, p. 362, Termes. Fuzetek xxiv, n. sp.
- Baryproctus hungaricus*, Budapest, SZÉPLIGETI, p. 180, Potfuz. Termes. Kozl. xxxiii, n. sp.
- Biosteres palearcticus*, Tomsk, SZÉPLIGETI, p. 153, Zichy Ergebn. ii, n. sp.
- Brachystropha quadriceps*, Adirondacks, ASHMEAD, p. 587, Bull. N. York Mus. 47, n. sp.
- Bracon melanothrix*, France, MARSHALL, p. 363, Bull. Mus. Paris vi ; *B. palastinensis*, Syria, SZÉPLIGETI, p. 152, Termes. Fuzetek xxiv ; *B. rufipalpis*, p. 270, *rufipedorator*, *pygidialis*, *pilosulus*, *centaureae*, *hypopygialis*, *mirus*, p. 271, *intermedius*, *subrugosus*, *subglaber*, *longiventris*, *carinatus*, *alutaceus*, *gracilis*, *subtilis*, p. 272, *suspectus*, *semirugosus*, *elegans*, *mixtus*, *bisinuatus*, *fumigatus*, p. 273, *mundus*, *corruptor*, *adjectus*, *duplicatus*, *fallaciosus*, *dubiosus*, p. 274, *hemirugosus*, *ruficapnus*, *nigropictus*, *nitidiusculus*, *aestivalis*, p. 275, *ventricosus*, *similis*, *confinis*, *congruus*, *nanulus*, *melanosoma*, p. 276, *rugulosus*, *minutus*, *curiosus*, *subornatus*, p. 277, *versicolor*, *novus*, *subinnuatus*, *fumatus*, *indubius*, *lautus*, p. 278, *rufigaster*, *maculifer*, *5-maculatus*, *curticaudis*, *terebrator*, *crassiusculus*, p. 279, *fumigidus*, *melanogaster*, *cingulator*, *spherocephalus*, p. 280, *globiceps*, *hemiflavus*, *fallax*, *discretus*, *coloratus*, p. 281, *brunneipennis*, *fumarius*, *breviventris*, p. 282, *rotundatus*, *hyalinipennis*, *csikii*, p. 282, *micros*, *carbonarius*, Hungary, SZÉPLIGETI, Potfuz. Termes. Kozl. xxxiii ; *B. nicevillei*, p. 555, *famulus*, p. 556, Bengal, BINGHAM, Ann. Nat. Hist. viii ; *B. diores*, New Britain, CAMERON, p. 226, P. Z. S. 1901, i : n. spp.
- Cardiochiles fumipennis*, Siberia, SZÉPLIGETI, p. 151, Zichy Ergebn. ii, n. sp.
- Cenocaelius fascipennis*, *ornaticornis*, *ruficeps*, p. 355, *hyalinipennis*, *testaceus*, *brasiliensis*, p. 356, Brazil, SZÉPLIGETI, Termes. Fuzetek xxiv, n. spp.
- Cratobracon* n. g. p. 226, for *C. ruficeps* n. sp. New Britain, p. 227, CAMERON, P. Z. S. 1901, i.
- Dacnusa erythrogastra*, p. 154, *D. (?) Epimicta* *caudata*, p. 155, Kazan, SZÉPLIGETI, Zichy Ergebn. ii, n. spp.
- Ecphylopsis nigra*, Kauai, ASHMEAD, p. 363, pl. ix, fig. 6, Fauna Hawaiensis i, n. sp.
- Evaniodes* n. g. *Cenocelionidae*, for *E. spathiiiformis*, p. 353, *areolatus*, p. 354, S. America, n. spp., SZÉPLIGETI, Termes. Fuzetek xxiv.
- Evaniomorpha* n. g. *Cenocelionidae*, for *E. munda* n. sp. Brazil, SZÉPLIGETI, p. 356, t. c.
- Fhogra* n. g. near *Meteorus*, p. 104, for *F. rubromaculata*, n. sp., New Zealand, p. 105, CAMERON, Tr. N. Zealand Inst. xxxiii.
- Gyroneuron* n. g. *Rhogadidae*, p. 231, for *G. mirum*, n. sp., Assam, p. 232, KOKUJEW, Rev. Russe Ent. i.
- Habrobracon brunnea*, p. 181, *vernalis*, *nigricans*, p. 182, Budapest, SZÉPLIGETI, Potfuz. Termes. Kozl. xxxiii, n. spp.
- Helcon australianus*, p. 15, *inornatus*, p. 17, N. S. Wales, KOKUJEW, Rev. Russe Ent. i, n. spp.
- Iphiaulax granulatus*, *cyanogaster*, p. 363, *speciosus*, *aschantianus*, p. 364, *neger*, p. 365, Africa, *concolor*, Celebes, p. 367, *haemiflavus*, Borneo, *melas*, Moluccas, p. 368, *australiensis*, Cooktown, *rugosus*, N. Guinea, p. 369, *sublobatus*, Celebes, *elegans*, *biroi*, p. 370, *marginatus*, *nitidulus*, p. 371, New Guinea, *lombokiensis*, Lombok, p. 372, *rostratus*, p. 373, *medianus*, *tricostatus*, New Guinea, *celebesiensis*, Celebes, p. 374, *insularis*, Am-

- boina, *caudatus*, Borneo, *gracilicornis*, N. Guinea, p. 375, *gracilis*, hab.?, *impressus*, Celebes or Ceram, p. 376, *seminiger*, Borneo, p. 377, *de-clarcatus*, *grandiceps*, p. 380, *arcuatus*, *elongatus*, *excisus*, p. 381, *flavipalpis*, *punctulatus*, p. 382, *carinatus*, *peruensis*, p. 383, *pebasianus*, *rufidorsum*, *nigripleuris*, p. 384, *similatus*, *similaris*, p. 385, *pilosulus*, *brasilienis*, *nigripalpis*, p. 386, *tristis*, *semialbus*, *piachyanus*, p. 387, *varicolor*, *amazonicus*, *ruficapus*, p. 388, *nigriscapus*, *meridensis*, *pubescens*, p. 389, *glabrescens*, *puberulus*, *aterrimus*, p. 390, *variipennis*, *ferus*, p. 391, *xanthostigma*, *seminiger*, *albopilosus*, p. 392, *brevicaudis*, *curticaudis*, S. America, *similis*, Panama, p. 393, *hirtulus*, *semiflavus*, p. 394, S. America, *natuliensis*, p. 395, S. Africa, *pilosus*, Moluccas, *novus*, Congo, p. 396, *festivus*, New Guinea, *crassicaudis*, *rufus*, hab.?, p. 397, *magnus*, *longipes*, p. 398, *consobrinus*, p. 399, *constellatus*, *flaviventris*, *conformis*, *mirus*, p. 400, *mirabilis*, S. America, *gibberosus*, Amboina, p. 401, SZÉPLIGETI, Termes. Fuzetek xxiv; *I. malayanus*, Singora, CAMERON, p. 43, P. Z. S. 1901, ii: n. spp.
- Leptobracon* n. g., p. 360, for *L. mocáryi*, n. sp., Brazil, p. 361, SZÉPLIGETI, Termes. Fuzetek xxiv.
- Liobracon* n. g. for *L. singularis*, n. sp., Brazil, SZÉPLIGETI, p. 361, t. c.
- Microdus hawaiiicola*, Hawaiian islands, ASHMEAD, p. 361, Fauna Hawaiiensis i, n. sp.
- Microplitis tunetensis*, Tunis, MARSHALL, p. 363, Bull. Mus. Paris vi, n. sp.
- Opus obscurus*, p. 152, *rossicus*, p. 153, Kazan, SZÉPLIGETI, Zichy Ergebn. ii, n. spp.
- Parahelcon* n. g. *Helconides*, p. 14, for *P. konovi*, n. sp., N. S. Wales, p. 15, KOKUJEW, Rev. Russe Ent. i.
- Phanerotoma hawaiiensis*, Hawaii, ASHMEAD, p. 361, Fauna Hawaiiensis i, n. sp.
- Pacilobracon* n. g., for *P. flaviceps*, n. sp., Australia, CAMERON, p. 122, Ann. Nat. Hist. viii.
- Protapanteles hawaiiensis*, Hawaiian Ids., ASHMEAD, p. 362, Fauna Hawaiiensis i, n. sp.
- Pseudovipio intermedius*, *gracilis*, Hungary, SZÉPLIGETI, p. 180, Potfuz. Termes. Kozl. xxxiii, n. spp.
- Rhizarcha astigma*, Adirondacks, ASHMEAD, p. 587, Bull. N. York Mus. 47, n. sp.
- Rhogas csiki*, Siberia, SZÉPLIGETI, p. 150, Zichy Ergebn. ii, n. sp.
- Rhytimorpha* n. g. for *R. coccinea* n. sp., Congo, SZÉPLIGETI, p. 359, Termes. Fuzetek xxiv.
- Sigalphoinæ*; palaearctic tabulated, SZÉPLIGETI, pp. 285-288, Potfuz. Termes. Kozl. xxxiii.
- Sigalphus rugosus*, p. 287, *sulcatus*, *similis*, *gibberosus*, *simulator*, *australis*, *bidentulus*, *edentulus*, p. 288, Hungary, SZÉPLIGETI, t. c. n. spp.
- Spathius exaratus*, parasite of *Anobium domesticum*, JOHNSON, p. 15, Ent. Mag. xxxvii.
- Stenobracon* n. g., p. 359, for *S. oculatus*, n. sp., Borneo, p. 360, SZÉPLIGETI, Termes. Fuzetek xxiv.
- Vipio persica*, Schacku, SZÉPLIGETI, p. 359, t. c., n. sp.

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- The North American monographed, BRADLEY, pp. 319-330, pl. xi, Tr. Amer. ent. Soc. xxvii.
- Deraidontus* n. g. type *Aulacus montanus*, p. 321, with *D. fuscilatus*, *flavirurus* n. spp., N. America, p. 322, BRADLEY, t. c.
- Evania shelfordi*, Borneo, CAMERON, p. 43, P. Z. S. 1901, ii; *E. neo-mexicana*, *californica*, N. America, ASHMEAD, Canad. Ent. xxxiii,

- p. 304; *E. muggenburi*, p. 188, *villosa*, p. 189, *fumipennis*, p. 190, Africa, *argenteocaudata*, New Guinea, p. 191, *haenschi*, Ecuador, *chalcidides*, Peru, p. 192, *parva*, Bogotá, p. 193, ENDERLEIN, Arch. Naturg. lxvii : n. spp.
- Gasteruption soave*, Istria, SCHLETTERER, p. 219, Verh. Ges. Wien li; *G. kriegeri*, p. 194, *virescens*, p. 195, New Guinea, ENDERLEIN, Arch. Naturg. lxvii : n. spp.
- Hyptia fuchi*, California, *weithi*, Hayti, p. 302, *trinidadensis*, Trinidad, *floridana*, Florida, *johnsoni*, Philadelphia, p. 303, ASHMEAD, Canad. Ent. xxxiii, n. spp.
- Oleisoprister* n. g., p. 324, type *Aulacus firmus*, with *O. subfirmus* Viereck, n. sp., New Jersey, p. 325, BRADLEY, Tr. Amer. ent. Soc. xxvii.
- Megischus violaceipennis*, New Britain, CAMERON, p. 225, P. Z. S. 1901, i, n. sp.
- Pammegischia ouelletii*, Canada, BRADLEY, p. 329, Tr. Amer. ent. Soc. xxvii; *P. xiphydriæ*, New York, ASHMEAD, p. 278, Ent. News Philad. xii; *P. xiphydriæ*, p. 300, *lovei*, *woodi*, p. 301, N. America, ASHMEAD, Canad. Ent. xxxiii : n. spp.

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- Stenophasmus fulleborni*, p. 206, *ingens*, p. 207, *camerunus*, p. 209, Africa, ENDERLEIN, Arch. Naturg. lxvii, n. spp.
- Stephanus*; table of African, ENDERLEIN, pp. 198–200, t. c.
- S. pygmeus*, New Guinea, p. 197, *globiceps*, p. 200, *schlettereri*, *brevicollis*, p. 201, *conradti*, p. 202, *terebrellus*, p. 204, *flvomaculatus*, *brevipetiolatus*, p. 205, Africa, ENDERLEIN, t. c., n. spp.
- Trigonalys natalensis*, ♂, ENDERLEIN, p. 195, t. c.

CHALCIDIDÆ.

(For Mymaridæ see Proctotrypidæ.)

- Anatomy of *Eupelmus mozonus*, host etc., VAYSSIÈRE, Ann. Fac. Marseille xi, pp. 77–92.
- Development of a *Pteromalid*, *Aspidiotiphagus citrinus*, in *Coccidæ*, PROWAZEK, Allg. Zeitschr. Ent. vi, pp. 289–291, pl. iv.
- Adelencyrtus kaulæ*, Oahu, ASHMEAD, p. 323, Fauna Hawaiiensis i, n. sp.
- Apterolelaps* n. g. for *A. nigriceps* n. sp. not described, ASHMEAD, p. 312, t. c.
- Aspidiotiphagus citrinus*, note, ZIMMERMANN, p. 39, Med. Plantentuin Java xliv, 2.
- Blastophaga grossorum*, introduced to N. America; caprification there, HOWARD (648); *Blastophaga* and caprification in California, SCHWARZ, pp. 502–507, P. ent. Soc. Washington iv.
- Bothriothorax howardii* n. n. for *B. insularis* How. nec Cam., ASHMEAD, p. 322, Fauna Hawaiiensis i.
- Coccidencyrthus flavus*, S. Africa, ASHMEAD, p. 139, Canad. Ent. xxxiii, n. sp.
- Coccophagus* sp. on *Aspidiotus*, Japan, SASAKI, pp. 171, 172, pl. iv, figg. 8, 9, Annot. Zool. Japan iii.
- Encyrtus bogoriensis* (unrecorded n. sp. in 1897), figure, pl. i, fig. 16, habits, p. 27, ZIMMERMANN, Med. Plantentuin Java xliv, 2.
- Eulophus citripes*, Hawaii, ASHMEAD, p. 332, Fauna Hawaiiensis i, n. sp.
- Eupelminus subapterus*, Oahu, ASHMEAD, p. 315, t. c., u. sp.

- Eupelmus niger*, p. 316, *konæ*, *splendissimus*, p. 317, *vulgaris*, *molokaiensis*, p. 318, *xanthopus*, *hawaiiensis*, p. 319, Hawaiian Ids., ASHMEAD, t. c., n. spp.
- Hemiptarsenus hawaiiensis*, Kona, ASHMEAD, p. 330, t. c., n. sp.
- Isosoma ovata*, Kazan, SZÉPLIGETI, p. 156, Zichy Ergebn. ii, n. sp.
- Leucospis kriegei*, p. 215, *similis*, p. 217, New Guinea, *nyassica*, Africa, p. 218, ENDERLEIN, Arch. Naturg. lxvii, n. spp.
- Mesolelaps* n. g. for *M. cyaneiventris* n. sp., pl. viii, fig. 8, Hawaii, ASHMEAD, p. 313, Fauna Hawaiiensis i.
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- Epyris hawaiiensis*, Hawaii, ASHMEAD, p. 286, Fauna Hawaiiensis i, n. sp.
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- Isocybus rossicus*, Kazan, SZÉPLIGETI, p. 157, Zichy Ergebn. ii, n. sp.
- Labeo pusillus*, Kazan, SZÉPLIGETI, p. 156, t. c., n. sp.
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- Mymar crinisacri*, N. Zealand, egg of *Vanessa gonerilla*, QUAIL, p. 154, p. viii, figg. 1–3, n. sp.
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- Amblynotus ruficeps*, Omsk, SZÉPLIGETI, p. 137, Zichy Ergebn. ii, n. sp.
- Andricus vindobonensis*, Austria, MÜLLNER, p. 529, pl. iv, figg. 7-13, Verh. Ges. Wien li, n. sp.
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HETEROCERA.

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BOMBYCES.

- [(s. l., including CHALCOSIIDÆ, URANIIDÆ, AGARISTIDÆ, etc.)
 (For *Epiplemidæ* see *Geometridæ*; *Surrothripinæ* see *Noctuidæ*; *Thyrididæ* see *Pyrалidæ*.)]

- [Cf. AURIVILLIUS (47), BARNES (71), BEUTENMÜLLER (104), CHAPMAN (230, 231), DOGNIN (363, 364, 366), DRUCE (374, 375), DYAR (382-386, 388, 391), FISCHER (458), FOSTER (481), FUCHS (518), GIRAULT (562), HAMPSON (592, 593, 595-597), HEYLAERTS (622), ILLIDGE & QUAIL (662), KAYE (707), KONINGSBERGER (780), LOWER (855), LUCAS (858), PACKARD (896, 997), PAGENSTECHER (1000), PIEPERS & SNEELLEN

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Anita n. g. *Notodontideæ*, for *A. basipuncta*, pl. xii, fig. 8, n. sp., Venezuela, SCHAUS, p. 332, Tr. ent. Soc. London 1901.

Anomates nox, Congo, AURIVILLIUS, p. 123, Ent. Tidskr. xxii, n. sp.

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Antheræa compta, ♂, pl. x, fig. 4, p. 404, ROTHSCHILD & JORDAN, Nov. Zool. viii.

Anticyra rufovittata, Congo, AURIVILLIUS, p. 122, Ent. Tidskr. xxii, n. sp.

Antiopha n. g. for *A. multilinea*, pl. xi, fig. 3, *collaris*, n. spp., S. America, SCHAUS, p. 275, Tr. ent. Soc. London 1901.

Aorista n. g. *Uraniideæ* for *Zonosoma alodia* Dogn., WARREN, p. 436, Nov. Zool. viii.

Apatelodes basifulva, Trinidad, KAYE, p. 142, pl. vi, fig. 17, Tr. ent. Soc. London 1901; *A. fastidiosa*, Tucuman, DOGNIN, p. 308, Ann. Soc. ent. Belgique xlv : n. spp.

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A. albescens, Guatemala, pl. xlvii, fig. 25, HAMPSON, p. 394, Cat. Lep. Phal. iii, n. sp.
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Asteropetes n. g. for *Seudrya noctuina* Dr., HAMPSON, p. 605, Cat. Lep. Phal. iii.
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- Boriza* n. g. type *Heterocampa crossæa* Dr., SCHAU, p. 310, Tr. ent. Soc. London 1901.
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- Byrsia ornata*, New Guinea, *amena*, Solomon Ids., ROTHSCILD & JORDAN, p. 423, Nov. Zool. viii, n. spp.
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- Calledema jocasta*, Rio Janeiro, SCHAU, p. 264, Tr. ent. Soc. London 1901, n. sp.
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- C. obliqua*, *biguttata*, New Guinea, p. 419, *occidentalis*, Nias Id., p. 420, ROTHSCILD & JORDAN, t. c. n. spp.
- Carcinartia* n. g. for *C. metamelæna*, n. sp., E. Africa, HAMPSON, p. 472, Cat. Lep. Phal. iii.
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- Cecropia* cocoons, position etc. DAVIS, p. 77, Ent. News Philad. xii.
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- Chalia vigasi*, *tristis*, Mexico, SCHAU, p. 45, J. N. York Ent. Soc. ix ; *C. kunkelii*, Argentina, HEYLAERTS, p. 97, Ann. Soc. ent. Belgique xlv : n. spp.
- Charagia*, early stages of several species, ILLIDGE & QUAIL, P. Soc. Queensland xvi, pp. 65–72, pl. ix.
- Chilena marshalli*, Mashunaland, AURIVILLIUS, p. 123, Ent. Tidskr. xxii, n. sp.
- Chionema saulia*, Paitan, SWINHOE, p. 124, Ann. Nat. Hist. viii, n. sp.
- Chlorhoda* n. g. for *Idalus rufoviridis* Walk., HAMPSON, p. 421, Cat. Lep. Phal. iii.

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- Cibyra dorita*, p. 76, *poltrona*, *dormita*, Brazil, *brunnea*, Venezuela, p. 77, SCHAUS, J. N. York ent. Soc. ix, n. spp.
- Cissura plumbea*, Brit. Honduras, HAMPSON, p. 72, Cat. Lep. Phal. iii, n. sp.
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- Clerckia miles isabella* subsp. n., *C. securizonis* sexes, ROTHSCILD & JORDAN, p. 410, Nov. Zool. viii.
- C. omissa*, Solomon Ids., p. 409, *thoracica*, New Guinea, *meyricki*, Brisbane = (*Exotrocha liboria* Meyr.), p. 410, ROTHSCILD & JORDAN, t. c. n. spp.
- Contheyla chara*, Borneo, SWINHOE, p. 464, Ann. Nat. Hist. vii, n. sp.
- Corcura interposita*, Venezuela, HAMPSON, p. 173, Ann. Nat. Hist. viii, n. sp.
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- Costria* n. g. *Cossidae*, near *Cossula*, type *C. abnoba* Schaus, with *C. corita*, Colombia, *maruga*, Parana, p. 46, *striolata*, *arpi*, *elegans*, p. 47, *discopuncta*, p. 48, Brazil, n. spp., SCHAUS, t. c.
- Cremnophora* n. g. for *Apina angasi* Walk., HAMPSON, p. 453, Cat. Lep. Phal. iii.
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- Ctenucha albipars*, Bolivia, HAMPSON, p. 175, t. c.; *C. mortia*, Parana, SCHAUS, p. 44, J. N. York Ent. Soc. ix : n. spp.
- Ctianopha* n. g. type *Tianupa argyria* Butl., SCHAUS, p. 272, t. c.
- Cyanactia* n. g. type *Eupyra dama* Druce, HAMPSON, p. 206, Cat. Lep. Phal. iii.
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- Cyllopoda quadriradiata*, Ecuador, WEYMER, p. 303, pl. v, fig. 15, Berlin. ent. Zeitschr. xlvi, n. sp.
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- Demolis* n. g. for *D. albicostata*, n. sp., Brazil, HAMPSON, p. 31, Cat. Lep. Phal. iii.
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- Euhalisidota otho*, Arizona, BARNES, p. 53, Canad. Ent. xxxiii, n. sp.
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- Eunotela* n. g. *Notodontidae*, for *E. pallida*, pl. xii, fig. 5, p. 325, *collaris*, p. 326, n. spp., S. America, and *Edemasia tropica* Schaus, SCHAUS, Tr. ent. Soc. London 1901.
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- Glaucostola* n. g. type *Leucopsumis guttipalpis* Walk., HAMPSON, p. 87, Cat. Lep. Phal. iii.
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- Heamanota* n. g. for *H. rubriceps* n. sp., Brazil, HAMPSON, p. 87, Cat. Lep. Phal. iii.
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- Urotu sinope*, larva, PACKARD, p. 282, Psyche ix.
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NOCTUIDÆ (incl. CYMATOPHORIDÆ, SARROTHRIPINÆ).

Agaristidæ see *Bombycæ*.

[Cf. BARNES (71), BEUTENMÜLLER (103, 104), CAPPEL (211), CHITTENDEN (234, 235), DISTANT (351), DRUCE (374, 375), DYAR (381, 388), GROTE (585), HAMPSON (596), HOYNINGEN-HUENE (653), KAYE (707), KURNEZOW (800), LAMPA (809), LUCAS (858), LYMAN (866), MEYRICK (921), POLING (1074), PÜNGELER (1091, 1092), REBEL (1106), N. ROTHSCHILD (1184), SCHAUS (1211), SEMPER (1276), SMITH (1306), SWINHOE (1346, 1347), TEICH (1353).]

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- Juncaria unicolorata*, Trinidad, KAYE, p. 122, pl. v, fig. 21, Tr. ent. Soc. London 1901, n. sp.
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- Laphygma frugiperda*, life-history, injurious habits, CHITTENDEN (235).
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Mycteroplus puniceago var. n. *viridicolor*, KRULIKOWSKY, p. 237, Rev. Russe Ent. i.
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- Osericana* Walk. = (*Pinacia* Walk., and *Mixtila* Swinh.), *O. albistella* Walk. = (*P. pupillalis* Snell.), SWINHOE, p. 134, op. cit. viii.
- Pagura* n. g. for *P. calgia* n. sp., Parana, SCHAUS, p. 91, Ann. Nat. Hist. viii.
- Palindia merta*, Rio Janeiro, SCHAUS, p. 38, t. c., n. sp.
- Pandesma pagana*, Assam, SWINHOE, p. 495, Ann. Nat. Hist. vii, n. sp.
- Parachabora triangulifera*, Bahamas, HAMPSON, p. 248, Ann. Nat. Hist. vii, n. sp.
- Paramimetica fuscireticulata*, Trinidad, KAYE, p. 135, pl. vi, fig. 5, Tr. ent. Soc. London 1901, n. sp.
- Parthenos nubilis* var. n. *apache*, POLING, p. 129, Canad. Ent. xxxiii.
- Parapenna* n. g. for *P. sentalis* n. sp., Trinidad, pl. vi, fig. 7, KAYE, p. 129, Tr. ent. Soc. London 1901.
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- Physula novitata*, Trinidad, KAYE, p. 135, pl. vi, fig. 8, Tr. ent. Soc. London 1901, n. sp.
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- Platyhypena scabra*, early stages, etc., CHITTENDEN, pp. 45-50, cuts, Bull. U. S. Dep. Agric. ent. xxx.
- Platyja minutipuncta*, Singapore, SWINHOE, p. 497, Ann. Nat. Hist. vii; *P. flavimacula*, Philippines, pl. lxi, fig. 3, p. 572, SEMPER, Schmett. Philipp. ii : n. spp.
- Plusia agramma*, pl. T, figg. 13, 14, *eriosoma*, figg. 15-17, p. 581, larvæ and pupæ, SEMPER, Schmett. Philipp. ii.
- Platysenta videns*, life-history, SEIFERT, pp. 12-19, J. N. York Ent. Soc. ix.
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- Plusia eriosoma*, larva, SWAINSON, p. 81, J. N. York Ent. Soc. ix.
- P. arachnoides*, Transvaal, DISTANT, p. 285, Entomologist, xxxiv, n. sp.
- Pæsula gorima*, Rio Janeiro, SCHAUS, p. 83, Ann. Nat. Hist. viii, n. sp.
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- Proruaca harmonica*, Transvaal, DISTANT, p. 284, Entomologist, xxxiv, n. sp.
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Teniocampa stabilis var., SCHNEIDER, p. 166, pl. fig. 3, Bergens Mus. Aarhø 1901.
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- Tringilburra* n. g. *Caradrinae*, for *T. lugens*, n. sp., Queensland, LUCAS, p. 81, P. Soc. Queensland xvi.
- Vizag* n. g. *Stictopteridae*, type *Ophiusa cyaneus* Snell., SWINHÖE, p. 491, Ann. Nat. Hist. vii.
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- Xylina bethunei*, life-history, LYMAN, p. 1, Canad. Ent. xxxiii.
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- Ypsora* n. g. for *Y. santaris* n. sp., Brazil, SCHAUS, p. 77, Ann. Nat. Hist. viii.
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- Zanclognatha moloalis*, Walk. sub *Bocana*, a good species, SWINHÖE, p. 17, Ann. Nat. Hist. viii.
- Z. bipunctata*, Trinidad, KAYE, p. 133, pl. vi, fig. 1, Tr. ent. Soc. London 1901, n. sp.
- Zethes pictipennis*, ♂, pl. lxiii, fig. 4, p. 584, SEMPER, Schmett. Philipp. ii.
- Z. multiplaga*, Assam, SWINHÖE, p. 498, Ann. Nat. Hist. vii; *Z. halcon*, Philippines, pl. lxii, fig. 5, p. 585, SEMPER, Schmett. Philipp. ii : n. spp.

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- Abraças grossulariata* var., HUENE, p. 158, Ent. Zeit. Stettin lxii; *A. æquimargo* (Swinhoe MS.), pl. lxiv, figg. 7, 8, p. 615, SEMPER, Schmett. Philipp. ii.
- A. latifasciata*, Fergusson Id., SWINHÖE, p. 463, Ann. Nat. Hist. vii, n. sp.
- Acanthoscelis* n. g. *Ennominae*, for *A. tarsispina*, n. sp., E. Africa, WARREN, p. 215, Nov. Zool. viii.
- Acidalia*; varieties, FUCHS, pp. 121 and 131-133, Ent. Zeit. Stettin lxii; *A. deversaria* var. n. *laureata*, FUCHS, p. 373, t. c.; *A. italicata* Mill. is a var. of *Minoa murinata*, REBEL, p. 192, Bull. Soc. ent. France 1901.
- A. accretata*, p. 119, *faillata*, p. 120, *geministrigata*, p. 122, Sicily, FUCHS, Ent. Zeit. Stettin lxii; *A. subcincta*, Colombia, DOGNIN, p. 179, Ann. Soc. ent. Belgique xlv : n. spp.
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- Acrotomodes chiriquensis*, Chiriqui, SCHAUS, p. 244, *A. hielaria*, p. 174, *borumata*, p. 175, S. America, SCHAUS, t. c. : n. spp.
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- Æ. atomaria*, Africa, WARREN, p. 216, t. c., n. sp.
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- Brachycola paucinotata*, Celebes, WARREN, p. 22, t. c., n. sp.
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- Byssodes bimacula*, Peru, SCHAUS, p. 166, Tr. Amer. ent. Soc. xxvii, n. sp.
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- Cacoriata rufimixta*, Niger, WARREN, p. 207, Nov. Zool. viii, n. sp.
- Cucostegania* n. g. *Deliniinae* for *C. australis* n. sp., Angola, WARREN, p. 211, t. c.
- Cambogia cervina*, Ecuador, p. 457, *nigrosticta*, Colombia, *fasciata, plumbeofusa, restrictata*, p. 458, *transsecta*, Chiriqui, *undulosata*, Colombia, p. 459, WARREN, t. c.; *C. coloraria, costalaria*, Mexico, p. 262, *platearia, singularia, hermosaria*, S. America, *nacara, halima*, p. 263, *isabella toporata*, Mexico, *olivaria*, p. 264, *signaria, reticulata, deulerata, noctilaria*, p. 265, S. America, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Cannagara sagiva*, Mexico, p. 245, *bogada*, Parana, p. 179, SCHAUS, t. c. : n. spp.
- Cargolia* n. g. *Boarmiinae*, p. 249, for *C. albiguncta* n. sp., Mexico, p. 250, SCHAUS, t. c.
- Carpella interrupta*, Bolivia, SCHAUS, p. 188, t. c., n. sp.
- Cataspilates quadrilinea*, Mexico, SCHAUS, p. 170, t. c., n. sp.
- Certima chiqua*, Mexico, SCHAUS, pp. 177, t. c.; *C. eximia*, Peru, p. 484, *nummifera*, Ecuador, p. 485, WARREN, Nov. Zool. viii : n. spp.
- Charommataea marginata*, Mexico, SCHAUS, p. 191, Tr. Amer. ent. Soc. xxvii, n. sp.
- Chiasmia connexa*, Khasia Hills, WARREN, p. 34, Nov. Zool. viii, n. sp.
- Chlenias heteromorpha*, N. S. Wales, LOWER, p. 65, Tr. R. Soc. S. Austral xxv, n. sp.
- Chloroclysta fulminea*, S. America, DOGNIN, p. 310, Ann. Soc. ent. Belgique xlv, n. sp.
- Chlorodrepana angustimargo*, Sierra Leone, WARREN, p. 7, Nov. Zool. viii, n. sp.
- Chloroteras* n. g. type *Comibæna devoluta* Walk., WARREN, p. 8, t. c.
- Chogadu subcincta*, W. Africa, WARREN, p. 16, t. c., n. sp.
- Choregia lucasseni*, Java, SNELLEN, p. 74, pl. v, fig. 9, Tijdschr. Ent. xlv, n. sp.

- Cidaria* ; Norwegian varr., STRAND, p. 69, *Nyt. Mag.* xxxix ; *C. tristata* var. n. *continuata*, FUCHS, p. 56, *Jahrb. nassau. Ver.* liv ; *C. molluginata* var. n. *pæcilata*, FUCHS, p. 135, *Ent. Zeit. Stettin* lxii ; *C. quadrifasciaria* var. n. *contrastaria*, FUCHS, p. 378, *trifasciata* var. n. *fulvoundata*, p. 381, t. c. ; *C. literata*, p. 190, pl., fig. 6, SCHNEIDER, Bergens Mus. Aarbog 1901.
- C. niveonotata*, Sikkim, WARREN, p. 26, *Nov. Zool.* viii ; *C. luteola*, Paraguay, DOGNIN, p. 183, *Ann. Soc. ent. Belgique* xlv ; *C. yerba, adexitata*, p. 270, S. America, SCHAUS, *Tr. Amer. ent. Soc.* xxvii : n. spp.
- Ciduriophanes guaparia*, p. 186, *C. ? duarina*, Parana, *C. incaria, psittacaria*, n. spp., Peru, p. 187, SCHAUS, t. c.
- Cingilia catenaria*, life history, DYAR, p. 250, *Psyche* ix.
- Cirsodes meridaria*, Venezuela, DOGNIN, p. 185, *Ann. Soc. ent. Belgique* xlv, n. sp.
- Cleora biangula*, Mexico, SCHAUS, p. 182, *Tr. Amer. ent. Soc.* xxvii, n. sp.
- Cleta sericearia, albipunctaria*, p. 241, S. America, *faragita*, Trinidad, p. 242, SCHAUS, t. c., n. spp.
- Cnemodes pertumna*, Peru, p. 191, *misteca, plerta, sabuloides, dudisca, cantona*, Mexico, SCHAUS, p. 192, t. c., n. spp.
- Cenocalpe pallidicosta*, Jamaica, WARREN, p. 461, *Nov. Zool.* viii, n. sp.
- Collis flavipuncta*, Bourbon, WARREN, p. 13, t. c., n. sp.
- Comibena magnifica*, Brazil, SCHAUS, p. 252, *Tr. Amer. ent. Soc.* xxvii, n. sp.
- Cophocerotis sobria*, Peru, WARREN, p. 470, *Nov. Zool.* viii, n. sp.
- Cortixa* n. g. *Orthostirinae*, for *C. aurudaria* n. sp., Peru, SCHAUS, *Tr. Amer. ent. Soc.* xxvii.
- Cosymbia jarata*, Rio Janeiro, SCHAUS, p. 193, t. c., n. sp.
- Craspedia ignobilis, imbellis*, Japan, p. 22, *parallelaria*, China, p. 23, WARREN, *Nov. Zool.* viii ; *C. impunctulata, ocellinicta, umbratilinea*, Africa, WARREN, p. , t. c. ; *C. collata*, p. 193, *habenata*, Syria, *crurata*, New Guinea, p. 194, WARREN, t. c. ; *C. crassipuncta, fusco-brunnea*, p. 207, *sincera*, p. 208, Africa, WARREN, t. c. ; *C. crenatilinea, falcataria*, Peru, p. 154, *olivacea*, Venezuela, p. 455, WARREN, t. c. ; *C. cugia*, p. 253, *bilinearia, vittora*, Mexico, *arthura, conotaria, gosina*, p. 254, *micara, anaisaria, donaria*, S. America, *enucloides*, Mexico, p. 255, SCHAUS, *Tr. Amer. ent. Soc.* xxvii ; *C. nacida, alurgata*, p. 177, *dehortata, puerca, sencilla*, Ecuador, DOGNIN, *Ann. Soc. ent. Belgique* xlv : n. spp.
- Cretheis sanguilineata*, Mysol, WARREN, p. 195, *Nov. Zool.* viii, n. sp.
- Crocallis elinguaris* var. n. *insolitaria*, FUCHS, p. 55, *Jahrb. nassau. Ver.* liv.
- Cyclomia ocana*, Mexico, SCHAUS, p. 241, *Tr. Amer. ent. Soc.* xxvii ; *C. fidoniata*, Peru, WARREN, p. 485, t. c. ; *C. magnipalpata*, Ecuador, DOGNIN, p. 184, *Ann. Soc. ent. Belgique* xlv : n. spp.
- Cyllopoda longicorpus*, Venezuela, WARREN, p. 438, *Nov. Zool.* viii, n. sp.
- Cyllopoda*, see also *Bombyces*.
- Cymatophora robusta*, Parana, WARREN, p. 477, *Nov. Zool.* viii, n. sp.
- Darna regia*, Ecuador, WARREN, p. 438, t. c., n. sp.
- Dasciopteryx* n. g. type *Ischnopteryx polymenes* Druce, WARREN, p. 481, t. c.
- Dasymacaria* n. g. *Ennominae*, for *D. ansorgei* n. sp., Congo, WARREN, p. 18, t. c.
- Decetia pallidaria*, ♂, pl. lxii, fig. 15, p. 594, SEMPER, *Schmett. Philipp.* ii.
- Deilinea dubitaria*, Bolivia, SCHAUS, p. 167, *Tr. Amer. ent. Soc.* xxvii, n. sp.
- Deptalia atomaria, obscurior*, Mexico, *minuta*, Florida, SCHAUS, p. 193, t. c. n. spp.
- Diastictis paulensis*, S. America, SCHAUS, p. 167, t. c., n. sp.

- Dichorda uricha*, Trinidad, KAYE, p. 147, pl. vi, fig. 6, Tr. ent. Soc. London 1901, n. sp.
- Dichroma alternata*, Angola, WARREN, p. 209, Nov. Zool. viii, n. sp.
- Dichromatopodia oaxacana*, *zova*, Mexico, *naltona*, *paulena*, S. America, SCHAUS, p. 189, Tr. Amer. ent. Soc. xxvii, n. spp.
- Didymoctenia* n. g. type *Boarmia exsuperata* Walk., WARREN, p. 33, Nov. Zool. viii.
- Digonodes matama*, *ragona*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxvii, n. spp.
- Diopsis pellucida*, p. 438, *restricta*, *uniguttata*, p. 439, S. America, WARREN, Nov. Zool. viii, n. spp.
- Diphacelophora* n. n. for *Phacelophora* Staud. nec Brandt, BERG, p. 311, Comun. Mus. Buenos Aires i.
- Dysphania remota*, ♀, WARREN, p. 192, Nov. Zool. viii.
- D. centralis*, New Guinea, ROTHSCHILD, p. 219, pl. x, fig. 6, Nov. Zool. viii, n. sp.
- Dyspteris vecinaria*, Chiriqui, *mexicarius*, Orizaba, SCHAUS, p. 253, Tr. Amer. ent. Soc. xxvii, n. spp.
- Ectropis plumosa* (Swinhoe MS.), pl. lxiv, fig. 3, p. 613, SEMPER, Schmett. Philipp. ii.
- E. ?præpcta*, Yokohama, WARREN, p. 33, Nov. Zool. viii, n. sp.
- Ellopiæ distincta*, Chiriqui, WARREN, p. 485, t. c., n. sp.
- Ematurga atomaria* varr. n., FUCHS, pp. 134, 135, Ent. Zeit. Stettin lxii.
- Emmelesia trappa*, Parana, SCHAUS, p. 271, Tr. Amer. ent. Soc. xxvii, n. sp.
- Emmiltis*, to be used for ? *Craspedia*, WARREN, p. 23, Nov. Zool. viii.
- E. cosmadelpha*, N. S. Wales, LOWER, p. 66, Tr. R. Soc. N. S. Wales xxv, n. sp.
- Endropia guatama*, p. 179, *mattearia*, Mexico, SCHAUS, p. 180, Tr. Amer. ent. Soc. xxvii, n. spp.
- Entomopepla vorda*, *grisea*, S. America, SCHAUS, p. 174, t. c., n. spp.
- Eois inductata*, life history, DYAR, p. 239, Psyche ix.
- E. multistrigaria*, Panama, WARREN, p. 459, Nov. Zool. viii ; *E. malvina*, Mexico, *complexaria*, *cosymbiata*, *ochraria*, *incanata*, p. 257, *macouma*, *penesta*, S. America, *borunta*, Jamaica, *cumana*, *basinta*, *cocaria*, p. 258, *ellima*, p. 259, Mexico, SCHAUS, Tr. Amer. ent. Soc. xxvii ; *E. pararussearia*, Ecuador, DOGNIN, p. 179, Ann. Soc. ent. Belgique xlv : n. spp.
- Ephialtias adiante*, a valid species, p. 439, *E. vittula* var. n. *carneata*, p. 440, WARREN, Nov. Zool. viii.
- E. æquivoca*, *constricta*, *lativitta*, S. America, WARREN, p. 440, t. c., n. spp.
- Ephyra alicia*, Brazil, SCHAUS, p. 191, Tr. Amer. ent. Soc. xxvii, n. sp.
- Epidesmia ophiosema*, W. Australia, LOWER, p. 64, Tr. R. Soc. S. Austral. xxv, n. sp.
- Epigynopteryx abbreviata*, *tabitha*, Africa, WARREN, p. 19, Nov. Zool. viii ; *E. commixta*, Africa, WARREN, p. 216, t. c. : n. spp.
- Epiplatymetra*, *allidaria*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxvii ; *E. costimacula*, Colorado, WARREN, p. 486, Nov. Zool. viii : n. spp.
- Epiptema quadricaudata*, pl. v, figg. 3, 4, *desistaria*, figg. 5, 6, p. 596, larvæ and pupæ, SEMPER, Schmett. Philipp. ii.
- E. flavistriga*, Khasia Hills, WARREN, p. 21, Nov. Zool. viii ; *E. ansorgei*, p. 203, *negro*, *nigrodorsata*, p. 204, Africa, WARREN, t. c. ; *E. planilinea* (Swinh.), Philippines, pl. lxii, fig. 16, p. 595, SEMPER, Schmett. Philipp. ii : n. spp.
- Epiranthia alectoraria*, larva, MARRINER, p. 147, pl. vi, Tr. N. Zealand Inst. xxxiii.
- Epirrhoe prasinaria*, Kilimanjaro, WARREN, p. 13, Nov. Zool. viii ; *E.*

- clathrata*, Khasia Hills, WARREN, p. 27, t. c.; *E. batis*, p. 461, *disconnexa*, *E. l discors*, p. 462, *heteroptila*, *pauperata*, p. 463, *planilineata*, *subpulverata*, p. 464, S. America, WARREN, t. c.; *E. niveigutta*, p. 271, *calentaria*, *albidaria*, p. 272, Brazil, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Episcea* n. g. near *Scea*, p. 440, for *E. extravagans*, *sancta*, n. spp., Brazil, p. 441, WARREN, Nov. Zool. viii.
- Erateina cachara*, Mexico, SCHAUS, p. 262, Tr. Amer. ent. Soc. xxvii; *E. monophthalma*, Peru, WARREN, p. 472, Nov. Zool. viii : n. spp.
- Ereboclhora chamæleonis*, Bolivia, SCHAUS, p. 271, Tr. Amer. ent. Soc. xxvii, n. spp.
- Ergavia drucei*, Centr. America, *obliterata*, Peru, SCHAUS, p. 275, t. c., n. spp.
- Euangerona umbrosa*, Peru, WARREN, p. 486, Nov. Zool. viii, n. sp.
- Eubya robustum* var. n. *albicollis*, WARREN, p. 199, t. c.
- Euchloris tetraspila*, Tasmania, LOWER, p. 66, Tr. R. Soc. S. Austral. xxv, n. sp.
- Eucosmia palpata*, Ecuador, DOGNIN, p. 181, Ann. Soc. ent. Belgique xlv, n. sp.
- Eucrostis viridipennata*, life-history, DYAR, p. 287, Psyche ix.
- E. senitaria*, Palestine, PÜNGELER, p. 333, Deutsche ent. Zeitschr. Lep. xiv; *E. innotata*, Benguela, WARREN, p. 205, Nov. Zool. viii, n. sp.
- Eudule mendica*, life history, DYAR, p. 189, Psyche ix.
- E. aperta*, S. America, WARREN, p. 473, Nov. Zool. viii, n. sp.
- Eulype nondescripta*, Petropolis, WARREN, p. 465, t. c., n. sp.
- Eupitheria*, some Swiss varr. and synonymy, FAVRE, pp. 360-364, Mitt. Schweiz. ent. Ges. x; *E. satyrata* var. n. *strandii*, FUCHS, p. 379, Ent. Zeit. Stettin lxii; *E. abietaria*, *strobilata*, synonymy, DIETZE, pp. 139-145, Deutsche ent. Zeitschr. Lep. xiv; *E. denotata* var. n. *ferreata*, FUCHS, p. 57, Jahrb. nassau. Ver. liv; *E. coscurata* Mill. is a var. of *Aridalia virgularia* Hb., REBEL, p. 193, Bull. Soc. ent. France 1901.
- E. teduldiana*, Sicily, FUCHS, p. 125, Ent. Zeit. Stettin lxii; *E. ? penicilla*, Ecuador, DOGNIN, p. 180, Ann. Soc. ent. Belgique xlv : n. spp.
- Eurytaphria lilacina*, Borneo, WARREN, p. 36, Nov. Zool. viii, n. sp.
- Eurytheodes maculosata*, Congo, WARREN, p. 216, t. c., n. sp.
- Eusarca guadaria*, Mexico, SCHAUS, p. 243, Tr. Amer. ent. Soc. xxvii, n. sp.
- Eusema parva*, Brazil, SCHAUS, p. 244, t. c., n. sp.
- Fidonia ansorgei*, Africa, WARREN, p. 16, Nov. Zool. viii; *F. tristata*, Peru, WARREN, p. 479, t. c., n. spp.
- Gazena hypomelas*, Trinidad, KAYE, p. 146, pl. vi, fig. 18, Tr. ent. Soc. London 1901, n. sp.
- Gathynia auratiplaga*, Nyassaland, WARREN, p. 7, Nov. Zool. viii, n. sp.
- Gelasma nordicaria*, Mexico, SCHAUS, p. 253, Tr. Amer. ent. Soc. xxvii, n. sp.
- Glaucopteryx discolorata*, Cape Town, WARREN, p. 13, Nov. Zool. viii, n. sp.
- Gnophos celebraria* varr. n. *senitaria* and *jugicolaria*, FUCHS, p. 375, Ent. Zeit. Stettin lxii; *G. serotinaria*, *dilucidaria*, characters, KROULIKOWSKY, p. 163, Soc. ent. xv.
- G. pentheri*, Herzegowina, REBEL, p. 801, Verh. Ges. Wien li; *G. lineolaria*, Centr. Asia, pl. iii, fig. 3, *evanidaria*, figg. 4, 5, p. 188, *tholeraria*, fig. 14, Chinese Turkestan, *fractifasciadia*, Centr. Asia, fig. 13, p. 189, PÜNGELER, Deutsche ent. Zeitschr. Lep. xiv; *G. cressaria*, Chiriqui, SCHAUS, p. 185, Tr. Amer. ent. Soc. xxvii : n. spp.
- Gonodela mundipennis*, Angola, WARREN, p. 213, Nov. Zool. viii, n. sp.
- Graphidipus abraxaria*, Chiriqui, WARREN, p. 470, t. c., n. sp.
- Gubaria biflava*, Banda, WARREN, p. 35, t. c., n. sp.
- Gymnoscelis crassata*, p. 208, *tenera*, p. 209, Africa, WARREN, t. c.; *G. picta*, Khasia Hills, WARREN, p. 30, t. c. : n. spp.

- Hæmalea narogena, rotundata, astota, caparia*, S. America, *virgota*, Jamaica, p. 256, *damaria*, p. 193, *vizaria*, p. 194, S. America, SCHAUS, Tr. Amer. ent. Soc. xxvii; *H. simplex*, Minas Geraes, WARREN, p. 455, Nov. Zool. viii : n. spp.
- Hæmatopsis grataria*, life history, DYAR, Psyche ix, p. 155.
- Hammaptera subguttaria* ab. n. *rufibasalis*, p. 467, *H. semiobliterata* to *Rhopalista*, p. 468, WARREN, Nov. Zool. viii.
- H. congener*, p. 465, *constricta*, p. 466, S. America, WARREN, t. c.; *H. trochilarioides*, Ecuador, Brazil, p. 182, DOGNIN, Ann. Soc. ent. Belgique xlv; *H. trujillaria, subrosea*, Mexico, *trinitaria*, Trinidad, p. 268, *crocara, halisma, cocama*, p. 269, *genurma*, p. 270, S. America, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Heliomata cycladata*, life history, DYAR, p. 177, Psyche ix.
- Hemipogon fuscicosta*, Watoebela Ids., WARREN, p. 195, Nov. Zool. viii, n. sp.
- Hesperomiza dusa*, Brazil, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxvii, n. sp.
- Heterophya subrubra*, Trinidad, KAYE, p. 148, pl. vi, fig. 19, Tr. ent. Soc. London 1901; *H. neximargo*, Peru, WARREN, p. 457, Nov. Zool. viii : n. spp.
- Heterocerita* n. g. type *Racheospila araria* Guen., WARREN, p. 445, t. c.
- Heterolocho tomsa*, Mexico, *apricoides*, Bolivia, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxvii, n. spp.
- Heterostegane pleniotata*, Sierra Leone, WARREN, p. 15, Nov. Zool. viii; *H. gammata*, Sarawak, WARREN, p. 197, t. c. : n. spp.
- Heterusia funesta*, Peru, p. 472, *tumidicosta*, Bolivia, p. 473, WARREN, t. c.; *H. brumalis, acothysta*, p. 261, S. America, *jamaicensis*, Jamaica, p. 262, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Hiptelia apfelbecki*, Bosnia, REBEL, p. 798, Verh. Ges. Wien li, n. sp.
- Homochlodes parita, orina*, p. 169, *sartina*, p. 170, Mexico, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
- Hydata felderi, povera*, Mexico, *sordida*, Brazil, SCHAUS, p. 250, t. c. n. spp.
- Hydriomene musga, caralpa*, Mexico, SCHAUS, p. 271, t. c., n. spp.
- Hymenomima subordida*, Parana, WARREN, p. 478, Nov. Zool. viii, n. sp.
- Hypnochlora popayanaria*, Colombia, DOGNIN, p. 310, Ann. Soc. ent. Belgique xlv, n. sp.
- Hypheclyle cascaria*, Mexico, *paularia, albida*, S. America, SCHAUS, p. 275, Tr. Amer. ent. Soc. xxvii, n. spp.
- Hypochroma purpurissata*, p. 77, *munita*, p. 78, *assidens*, p. 79, Queensland, LUCAS, P. Soc. Queensland xvi, n. spp.
- Hypochrosis lycoraria*, characters, WARREN, p. 200, Nov. Zool. viii.
- H. hiresia*, Flores, SWINHOE, p. 125, Ann. Nat. Hist. viii, n. sp.
- Hyposidra ruptifascia*, Borneo, WARREN, p. 201, Nov. Zool. viii, n. sp.
- Hyria lilliana, gemma*, Mexico, *maudina*, Trinidad, *dividaria*, p. 260, *ellisca, afroda*, S. America, *violescens, radaria*, Mexico, p. 261, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
- Ira olivata*, Ecuador, WARREN, p. 486, Nov. Zool. viii, n. sp.
- Technopteryx aurudaria*, Brazil, SCHAUS, p. 249, Tr. Amer. ent. Soc. xxvii, n. sp.
- Isochromodes dispar* referred to *Paracomistis*, WARREN, p. 489, Nov. Zool. viii.
- Janarda flamingo*, Angola, WARREN, p. 208, t. c., n. sp.
- Jonia striata* var. n. *attenuata, amplifava*, WARREN, p. 442, t. c.
- Jonia banana, fustula, interrupta*, S. America, WARREN, p. 441, t. c., n. spp.
- Kuldscha comitifera*, Amur, WARREN, p. 27, t. c., n. sp.
- Larentia aqueata* var. n. *hercegovinensis*, REBEL, p. 799, Verh. Ges. Wien li; *L. cheimatobiata* Guen. as *Campptogramma*, characters, WARREN, p. 27, Nov. Zool. viii.
- L. omphacina*, p. 179, *cruziata*, p. 180, Brazil, DOGNIN, Ann. Soc. ent. Belgique xlv, n. spp.

- Leptoctenopsis murina*, Venezuela, WARREN, p. 437, Nov. Zool. viii, n. sp.
Leucobursada n. g. for *L. latimargo*, pl. lxiv, figg. 10, 11, p. 619, *biplagiata*, fig. 12, p. 620, n. spp., Philippines, and including *Bursada rotundimacula* Warren, figured, pl. lxiv, figg. 13, 14, SEMPER, Schmett. Philipp. ii.
Leucomicra fuscaria, Parana, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxvii, n. sp.
Leucula petrovna, Brazil, SCHAUS, p. 178, t. c.; *L. rasa*, Petropolis, WARREN, p. 475, Nov. Zool. viii : n. spp.
Leuculopsis n. g. *Nephodiinae*, p. 475, for *L. colorata* n. sp., Chiriqui, p. 476, WARREN, t. c.
Lignyoptera thaumastaria, Bosnia, REBEL, p. 800, Verh. Ges. Wien li, n. sp.
Lipomelia nubilata, Peru, SCHAUS, p. 194, Tr. Amer. ent. Soc. xxvii, n. sp.
Lobopola transoma, Mexico, SCHAUS, p. 246, t. c., n. sp.
Lythra purpuraria var. n. *abstinentaria*, FUCHS, p. 377, Ent. Zeit. Stettin lxii.
Lythria ? *sarruncaria*, Mexico, SCHAUS, p. 241, Tr. Amer. ent. Soc. xxvii, n. sp.
Macuria notata var. n. *innotata*, FUCHS, p. 54, Jahrb. nassau. Ver. liv.
Megatheca dentosa, Queensland, WARREN, p. 31, Nov. Zool. viii, n. sp.
Melinodes conspicua, Brazil, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxvii, n. sp.
Melinoessa pauper, Africa, WARREN, p. 210, Nov. Zool. viii, n. sp.
Melochlora n. g. type *Tachyphyle neis* Druce, with *M. trimaculata*, Chiriqui, p. 445, *vivida*, Venezuela, p. 446, n. spp., WARREN, t. c.
Merocautia minusaria, Bahamas, HAMPSON, p. 251, Ann. Nat. Hist. vii, n. sp.
Mesocolpia n. g. near *Chlorocystis*, for *M. subcomosa* n. sp., W. Africa, WARREN, p. 12, Nov. Zool. viii.
Mesothea n. g. for *Nemoria incertata* Walk., WARREN, p. 446, t. c.
Metanema margica, *santella*, p. 176, *excavaria*, p. 245, Mexico, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
Meticulodes algera, Peru, SCHAUS, p. 182, t. c., n. sp.
Miantonota, characters amended, WARREN, p. 447, Nov. Zool. viii.
Microgonia rufaria, Ecuador, WARREN, p. 488, t. c.; *M. castraria*, *incata*, *bertha*, *rotata*, *umbrosa*, S. America, SCHAUS, p. 172, Tr. Amer. ent. Soc. xxvii : n. spp.
Microloxia pulverata, Beyrut, WARREN, p. 193, Nov. Zool. viii, n. sp.
Microzydia pulveraria, Mexico, SCHAUS, p. 243, Tr. Amer. ent. Soc. xxvii, n. sp.
Micrulus crassitibia, Danmer Isld., WARREN, p. 31, Nov. Zool. viii, n. sp.
Milionia everetti, note and figure, p. 405, pl. x, fig. 8, ROTHSCILD & JORDAN, Nov. Zool. viii.
M. weiskei, New Guinea, ROTHSCILD, p. 220, pl. x, fig. 7, t. c.; *M. coalescens* (Swinh.), pl. lxv, fig. 1, p. 621, *stellata* (Sw.), fig. 2, *coronifera* (Sw.), figg. 3, 4, p. 622, SEMPER, Schmett. Philipp. ii. : n. spp.
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Minophyle n. gen. *Fidoniinae*, for *M. noctuata* n. sp., Parana, WARREN, p. 480, t. c.
Mimosema n. g. *Ennominae*, for *M. imitans* n. sp., Chiriqui, WARREN, p. 488, t. c.
Mixocera n. g. near *Nemoria*, type *indecretata* Walk., with *M. albimargo* n. sp., Niger, WARREN, p. 206, t. c.
Mnesiloba n. g. for *Phibalapteryx eupitheciata* Walk., WARREN, p. 196, t. c.
Mochlotona phasmatus Meyr., larva, ♂, KERSHAW, pp. 204-206, Victorian Natural. xvii.
Monochyria n. g. near *Tephroclystia*, for *viridicinctata* Guen., WARREN, p. 28, Nov. Zool. viii.

- Mucronodes inopia*, Venezuela, DOGNIN, p. 186, Ann. Soc. ent. Belgique xlv, n. sp.
- Myrtela coanaria*, Mexico, SCHAUS, p. 167, Tr. Amer. ent. Soc. xxvii, n. sp.
- Narragodes psychidia*, Parana, WARREN, p. 480, Nov. Zool. viii, n. sp.
- Neagathia semilucida*, Rio Janeiro, SCHAUS, p. 250, Tr. Amer. ent. Soc. xxvii, n. sp.
- Nelo divisa* ab. n. *radiata*, WARREN, p. 474, Nov. Zool. viii.
- N. ruptimargo*, Cumana, WARREN, p. 475, t. c., n. sp.
- Nematocampa benescripta*, Panama, WARREN, p. 488, t. c.; *N. evanidaria*, Peru, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxvii : n. spp.
- Nemoria silena*, Brazil, SCHAUS, p. 252, t. c., n. sp.
- Neocrasis* n. g. for *N. obscurata* n. sp., Colombia, WARREN, p. 447, Nov. Zool. viii.
- Neodora cretacea*, Peru, WARREN, p. 489, t. c., n. sp.
- Nesochlide* n. g. *Selidosemidae*, for *N. epixantha* n. sp., Oahu, PERKINS, Ent. Mag. xxxvii, p. 216.
- Neuropolodes fulvata*, Sierra Leone, WARREN, p. 19, Nov. Zool. viii, n. sp.
- Nipteria claribrunnea*, *clarigrisea*, *curvifascia*, S. America, WARREN, p. 476, t. c., n. spp.
- N. virginata*, *claudaria*, Parana, SCHAUS, p. 188, Tr. Amer. ent. Soc. xxvii, - n. spp.
- Numia axanaria*, Mexico, *lermia*, Brazil, SCHAUS, p. 242, t. c., n. spp.
- Obeidia diversicolor*, Madras, WARREN, p. 198, Nov. Zool. viii, n. sp.
- Ochyria trientata*, Africa, WARREN, p. 210, t. c.; *O. ? sicyata*, Brazil, DOGNIN, p. 183, Ann. Soc. ent. Belgique xlv : n. spp.
- Odontoptila siculodaria*, Mexico, SCHAUS, p. 189, Tr. Amer. ent. Soc. xxvii, n. sp.
- Oenoptila recessa*, Venezuela, DOGNIN, p. 185, Ann. Soc. ent. Belgique xlv, n. sp.
- Oenospila tenuilinea*, Trinidad, KAYE, p. 147, pl. vi, fig. 16, Tr. ent. Soc. London 1901, n. sp.
- Oenothalia perrubra*, Trinidad, KAYE, p. 143, pl. v, fig. 8, t. c. n. sp.
- Oligochroa gayneri*, Assouan, N. ROTHSCHILD, p. 434, Nov. Zool. viii, n. sp.
- Oospila ruptimacula*, Ecuador, WARREN, p. 448, Nov. Zool. viii, n. sp.
- Ophthalmophora farantes*, *crasaria*, *dora*, S. America, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
- Opisthoxia claudaria*, Rio Janeiro, SCHAUS, p. 165, t. c., n. sp.
- Oporabia autumnata*, habits, ALLEN, p. 43, Entomologist xxxiv.
- Oxydia subalbescens*, Bolivia, *coctura*, Merida, DOGNIN, p. 186, Ann. Soc. ent. Belgique xlv, n. spp.
- Panthera pumaria*, Mexico, SCHAUS, p. 188, Tr. Amer. ent. Soc. xxvii, n. sp.
- Paracomistis nebulosa*, p. 489, *punctata*, p. 490, Panama, WARREN, n. spp.
- Paracrocotha semirufa*, Congo, WARREN, p. 20, Nov. Zool. viii, n. sp.
- Parrhenia nebula*, Parana, SCHAUS, p. 188, Tr. Amer. ent. Soc. xxvii, n. sp.
- Patalene acuta*, Trinidad, KAYE, p. 145, pl. vi, fig. 13, Tr. ent. Soc. London 1901, n. sp.
- Pelurga cicatriculata*, Berg as *Lygris*, (= *straminea* WALT.), WARREN, p. 467, Nov. Zool. viii.
- Periclina inornata*, Chiriqui, WARREN, p. 490, t. c., n. sp.
- P. daidama*, Mexico, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxvii, n. sp.
- Perixera rufidorsata* and *rufannularia* are one, transferred to *Phrissosceles*, WARREN, p. 24, Nov. Zool. viii.
- Perizoma constricta*, India, p. 28, *verticata*, China, p. 29, WARREN, t. c., n. spp.

- Pero bicurvata*, p. 490, *ochriplaga*, p. 491, S. America, WARREN, t. c., n. spp.
- Petelia nigriplaga*, Mexico, SCHAUS, p. 246, Tr. Amer. ent. Soc. xxvii, n. sp.
- Phæochlæna crypsispila, longipalpis*, Panama, p. 442, *circumfumata*, Venezuela, p. 443, WARREN, Nov. Zool. viii, n. spp.
- Phalacrothyris subviridis*, characters, WARREN, p. 202, t. c.
- Phaludia* n. g. *Boarmiinae*, p. 242, for *P. janeira* n. sp., Brazil, p. 243, SCHAUS, Tr. Amer. ent. Soc. xxvii.
- Phasiane glarearia*, early stages, HABICH, p. 646, Verh. Ges. Wien li.
- Pherotesia* n. g. *Boarmiinae*, p. 246, for *P. malinaria* n. sp., Mexico, p. 247, SCHAUS, Tr. Amer. ent. Soc. xxvii.
- Phibalapteryx fusconotata*, Ecuador, DOGNIN, p. 180, Ann. Soc. ent. Belgique xlv; *P. vittulata*, Bolivia, *cincta*, Mexico, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Phrudocentra pupillata* ab. n. *submaculata*, WARREN, p. 448, Nov. Zool. viii.
- P. olivia*, Parana, SCHAUS, p. 253, Tr. Amer. ent. Soc. xxvii, n. sp.
- Phyletis sticticata*, Uganda, WARREN, p. 10, Nov. Zool. viii, n. sp.
- Phyllodonta druciata, indeterminata*, Centr. America, SCHAUS, p. 173, Tr. Amer. ent. Soc. xxvii; *P. songaria*, Bolivia, *anca*, Chili, DOGNIN, p. 187, Ann. Soc. ent. Belgique xlv : n. spp.
- Physocleora capruma, martena, durdusa*, Brazil, SCHAUS, p. 186, Tr. Amer. ent. Soc. xxvii, n. sp.
- Pingasa interrupta*, Africa, WARREN, p. 204, Nov. Zool. viii, n. sp.
- Pisoraca variospila*=(*monetaria* Hamp. nec Guen.), WARREN, p. 24, t. c., n. sp.
- Plemyria paranensis*, Parana, SCHAUS, p. 273, Tr. Amer. ent. Soc. xxvii, n. sp.
- Plemyriopsis variegata*, Chiriqui, WARREN, p. 467, Nov. Zool. viii, n. sp.
- Pogonogya adaucta*, Demerara, WARREN, p. 456, t. c., n. sp.
- Polla voraria*, Brazil, SCHAUS, p. 174, Tr. Amer. ent. Soc. xxvii; *P. optimaria*, Bolivia, DOGNIN, p. 188, Ann. Soc. ent. Belgique xlv : n. spp.
- Polyphasia schistacea*, Colorado, WARREN, p. 468, Nov. Zool. viii, n. sp.
- Polysema brunnea*, Peru, SCHAUS, p. 276, Tr. Amer. ent. Soc. xxvii, n. sp.
- Porona* n. g. *Boarmiinae*, p. 170, for *P. dissimilis* n. sp., Parana, p. 171, SCHAUS, t. c.
- Prasinocyma absimilis*, New Guinea, WARREN, p. 193, Nov. Zool. viii, n. sp.
- Prionia fulvifusa*, Borneo, WARREN, p. 36, t. c., n. sp.
- Problepsis ochripicta, subviridata*, Sierra Leone, WARREN, p. 10, t. c., n. spp.
- Procharodes cristata*, Bolivia, WARREN, p. 491, t. c., n. sp.
- Prohydata* n. g. *Geometrinae*, for *P. apicata, vitrearia* n. spp., S. America, SCHAUS, p. 251, Tr. Amer. ent. Soc. xxi.
- Proteostrenia leda* var. n. *occulta*, WARREN, p. 200, Nov. Zool. viii.
- Psaliodes acidalioides*, Trinidad, KAYE, p. 148, pl. vi, fig. 9, Tr. ent. Soc. London 1901; *P. trossula*, Ecuador, DOGNIN, p. 183, Ann. Soc. ent. Belgique xlv; *P. hieroglyphica*, Mexico, *variegata*, p. 273, *purpurea, pallida, multilinea*, S. America, *basiplaga, muscona*, Mexico, p. 274, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Pseudapicia* n. g. near *Apicia*, p. 243, for *P. basivirida*, Amazona, *pallidaria*, Mexico, n. spp., p. 244, SCHAUS, t. c.
- Pseudocollix olivata*, Khasia hills, WARREN, p. 29, Nov. Zool. viii, n. sp.
- Pseudosterrha gayneri*, Egypt, N. ROTHSCHILD, p. 433, t. c., n. sp.
- Psilalcis inceptaria*, pl. lxiv, fig. 4, p. 613, SEMPER, Schmett. Philipp. ii.
- Pterocypha juanaria, rufomarginata, chama*, S. America, *tabascana*, Mexico, p. 266, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
- Ptychopoda rufulata*, Africa, WARREN, p. 11, Nov. Zool. viii; *P. delicata*

- tula*, p. 24, *indeterminata*, India, *lauta*, Japan, *punctatissima*, Queensland, p. 25, WARREN, t. c.; *P. gracilipennis*, Beirut, WARREN, p. 195, t. c.; *P. pipperata, subzeisata*, Brazil, WARREN, p. 456, t. c.; *P. grasuta*, p. 192, *canthema*, p. 193, *celtima*, *jalapata*, *P. ? jugaria*, Mexico, *lumarina, puranaria*, S. America, p. 259, *iridaria*, Orizaba, p. 260, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Pycnodontia* n. g. *Geometrinae*, for *P. apicata* n. sp., E. Africa, WARREN, p. 206, Nov. Zool. viii.
- Pyrrinia bertularia, aroaria, pectoria, discata*, S. America, *sanitaria*, Mexico, SCHAUS, Tr. Amer. ent. Soc. xxvii, n. spp.
- Racheospila remota* referred to *Miantonota*, WARREN, p. 447, Nov. Zool. viii.
- R. astraeoides*, p. 448, *bidentifera, decorata*, p. 449, *diaphana*, S. America, *semiornata, vinocincta*, Chiriqui, p. 450, WARREN, t. c.; *R. undulosa*, Trinidad, KAYE, p. 148, pl. vi, fig. 23, Tr. ent. Soc. London 1901; *R. luteifimbria*, Colombia, DOGNIN, p. 309, Ann. Soc. ent. Belgique xlv; *R. capysoides*, Mexico, *pulveraria*, p. 251, *viridicincta, gortaria*, p. 252, S. America, SCHAUS, Tr. Amer. ent. Soc. xxvii : n. spp.
- Rhodochlora rothschildi*, Chiriqui, WARREN, p. 451, Nov. Zool. viii, n. sp.
- Rhomboptila intermedia*, Peru, SCHAUS, p. 174, Tr. Amer. ent. Soc. xxvii, n. sp.
- Rhomborista palliata* and *ustipennis* are sexes of one species, WARREN, p. 206, Nov. Zool. viii.
- Rhopalista finitima*, Brazil, DOGNIN, p. 182, Ann. Soc. ent. Belgique xlv; *R. improbaria, vanonaria*, Mexico, *repandaria*, S. America, SCHAUS, p. 268, Tr. Amer. ent. Soc. xxvii : n. spp.
- Sabulodes transversata*, life history, DYAR, p. 273, Psyche ix.
- Scea servula*, Colombia, WARREN, p. 443, Nov. Zool. viii, n. sp.
- Sciagraphia heliothidata*, life history, DYAR, p. 203, Psyche ix.
- Scionomia* n. g. type *Cidaria mendica* Butl., WARREN, p. 35, Nov. Zool. viii.
- Scoria infumata*, Peru, WARREN, p. 481, t. c., n. sp.
- Scotopterix ? subnigrata*, Cachar, WARREN, p. 34, t. c.; *S. insolita*, Peru, WARREN, p. 479, t. c. : n. spp.
- Scotonia zona, Brazil, albifasciata*, Paraguay, DOGNIN, p. 181, Ann. Soc. ent. Belgique xlv, n. spp.
- Selenia illustraria*, broods, MERRIFIELD, p. 341, Entomologist xxxiv; *S. bilunaria*, var. n., STRAND, p. 56, Nyt. Mag. xxxix; *S. bilunaria*, broods in Scotland, MORTON, p. 119, Ann. Scott. Nat. Hist. 1901.
- S. albilinearia*, Mexico, SCHAUS, p. 180, Tr. Amer. ent. Soc. xxvii, n. sp.
- Semiothisa majestica*, Angola, WARREN, p. 213, Nov. Zool. viii; *S. evanaria*, Brazil, *dentilaria, mayana*, p. 167, *josefaria, valmonaria*, Mexico, *discata*, Costa Rica, *ramparia, poltronaria*, p. 168, *finaria, tristuria*, S. America, *falconaria*, Jalapa, p. 169, SCHAUS, Tr. Amer. ent. Soc. xxvii; *S. grisearia*, Colombia, SCHAUS, p. 243, t. c. : n. spp.
- Senelys enucleata*, life history, DYAR, p. 165, Psyche ix.
- Sicya vigasia*, Mexico, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxvii, n. sp.
- Simena umbrifera*, Mexico, SCHAUS, p. 188, t. c., n. sp.
- Somatina fusaria*, Bahamas, HAMPSON, p. 253, Ann. Nat. Hist. vii, n. sp.
- Spargania bellipicta*, Colorado, p. 468, *subcuprea*, Panama, p. 469, WARREN, Nov. Zool. viii, n. spp.
- Spilocraspida aroaria*, Venezuela, *umbrilinea*, Mexico, SCHAUS, p. 187, Tr. Amer. ent. Soc. xxvii, n. spp.
- Spododes nubilata*, Peru, p. 176, *fiamina*, Colombia, p. 177, SCHAUS, t. c., n. spp.
- Stamnoctenis* n. g. for *Xanthorhoë volucer* Hulst, WARREN, p. 471, Nov. Zool. viii.
- Stenalcidia cindica* var. *occidentalis*, SCHAUS, p. 185, Tr. Amer. ent. Soc. xxvii.

- S. occulta*, *arthura*, Brazil, id. l. c.; *S. sincera*, Peru, *tristaria*, Brazil, SCHAUUS, p. 249, t. c.; *S. pergriseata*, Peru, WARREN, p. 478, Nov. Zool. viii : n. spp.
- Synchlora louisæ* var. ? var. n. *kultiana*, DYAR, p. 457, P. ent. Soc. Washington iv.
- Synnomos? nurangia* Mexico, SCHAUUS, p. 180, Tr. Amer. ent. Soc. xxvii, n. sp.
- Syrphadæa curvilinea* Venezuela, WARREN, p. 482, Nov. Zool. viii, n. sp.
- Tachyphyle occulta*, Colombia, WARREN, p. 451, t. c., n. sp.
- Tephrosia illineata*, *ochriciliata*, Africa, WARREN, p. 214, t. c.; *T. brunneofusa*, Chiriqui, WARREN, p. 482, t. c. : n. spp.
- Tephrocystia virgaureata*, habits, KLOS, p. 785, Verh. Ges. Wien li.
- T. druentiata*, Basse Alpes, DIETZE, p. 254, larva and pupa, pl. iv, Deutsche ent. Zeitschr. Lep. xiv; *T. vermiculata*, Africa, WARREN, p. 12, Nov. Zool. viii; *T. fedatipennis*, Malay penins., WARREN, p. 32, t. c.; *T. bialbata*, *perciliata*, S. America, WARREN, p. 474, t. c. : n. spp.
- Tephrosia sadrina*, *giatoma*, p. 184, *humidaria*, Mexico, *T.? centrosea*, Parana, p. 185, *immacata*, Brazil, p. 248, SCHAUUS, Tr. Amer. ent. Soc. xxvii; *T. pagonaria*, Mexico, SCHAUUS, p. 245, t. c. : n. sp.
- Therina punctillaria*, *templadaria*, Mexico, *atomaria*, Costa Rica, p. 179, *pardiria*, Chiriqui, p. 245, SCHAUUS, t. c., n. spp.
- Thysanopyga subalba*, W. Africa, WARREN, p. 17, Nov. Zool. viii; *T. nigricomata*, Chiriqui, WARREN, p. 481, t. c.; *T. maresa*, *lollia*, Brazil, SCHAUUS, p. 246, Tr. Amer. ent. Soc. xxvii : n. spp.
- Tigridoptera cuneiplena*, ♂, pl. lxiv, fig. 9, p. 618, SEMPER, Schmett. Philipp. ii.
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- Urepione epona*, Ecuador, DOGNIN, p. 189, Ann. Soc. ent. Belgique xlv, n. sp.
- Victoria ansorgei*, Africa, WARREN, p. 8, Nov. Zool. viii, n. sp.
- Xanthorhoe castanea*, Kashmir, WARREN, p. 30, t. c., n. sp.
- Xanthotype crocataria*, life history, DYAR, p. 226, Psyche ix.
- Yashmakia* n. g. *Deiliniinae*, for *Y. veneris*, n. sp., Sarawak, WARREN, p. 197, Nov. Zool. viii.
- Zamarada angustimargo*, *flavicaput*, *Z.? confusa*, Africa, WARREN, p. 212, t. c., n. spp.
- Zanclopera nubusta*, Nias Is., WARREN, p. 37, t. c., n. sp.
- Zonosoma pendularia* var., WOODFORDE, p. 296, Ent. Rec. xiii; *Z. linearis* var. n. *strabonaria*, FUCHS, p. 136, Ent. Zeit. Stettin lxii; *Z. orbicularia* var. vel sp. n. *ianthinarium*, STICHEL, p. 20, Berlin. ent. Zeitschr. 1901, S.B.; *Z. alodia* Dog. referred to *Uranide* as *Aorista* n. g., q. v.

PYRALIDÆ and THYRIDIDÆ.

[Cf. BEUTENMÜLLER (104), CHITTENDEN (234), DISQUÉ (344), DYAR (388, 389), FERNALD (450), HAMPSON (596), HERING (617), KAYE (707), KONINGSBERGER (780), LEECH & SOUTH (829), LOWER (855), MEYRICK (921), RAGONOT (1104), SNELLEN (1311), SORHAGEN (1318), SWINHOE (1346, 1347), WARREN (1436, 1439, 1440).]

Completion of the monograph of *Phycitinae* and *Galleriinae*, RAGONOT (1104). *Pyralidæ* from China, Japan & Corea, 434 species, LEECH & SOUTH, Tr. ent. Soc. London 1901, pp. 385-513, pla. xiv, xv.

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- Achroia obscurevittella*, Japan, RAGONOT, pl. xliii, fig. 24, p. 498, Romanoff Mém. viii, n. sp.
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- Alamosa* n. g. *Anerastini*, for *A. piperatella* n. sp., Colorado, pl. li, fig. 25, HAMPSON, t. c.
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- Aulacodes laminalis*, China, SOUTH, p. 437, Tr. ent. Soc. London 1901, n. sp.
- Autocharis egenula* Celebes, HERING, p. 277, Ent. Zeit. Stettin lxii, n. sp.
- Barbifrontia* n. g. near *Oryctometopia*, for *B. hemileucella*, Australia, n. sp., pl. lvi, fig. 2, p. 525, HAMPSON, Romanoff Mém. viii.
- Baroda flammella*, W. Africa, HAMPSON, pl. li, fig. 12, p. 348, t. c., n. sp.
- Botys nubilalis*, habits, etc., SNELLEN, Tijdschr. Ent. xlv, Verslag, p. 2; *B. flavalis* and *citrinalis* distinctions, *B. citrinalis* var. n. *albaviciensis*, FUCHS, pp. 61-63, Jahrb. Nassau. Ver. liv.
- Bradina rectilinealis, nigripunctalis*, pl. xv, fig. 25, China, SOUTH, p. 440, Tr. ent. Soc. London 1901, n. spp.
- Cactoblastis* n. g. for *Z. cactorum* Berg, RAGONOT, p. 15, Romanoff Mém. viii.
- Cangetta rectilinea* Moore = (*Paraponyx hartoghialis* Snell. and *griseolalis* Hamps.), SWINHOE, p. 135, Ann. Nat. Hist. viii.
- Cathayia* n. g. *Galleriinae*, p. 451, for *C. obliquella* n. sp., China, pl. li, fig. 6, p. 452, HAMPSON, Romanoff Mém. viii.
- Chilo funerellus*, Bahamas, HAMPSON, p. 254, Ann. Nat. Hist. vii, n. sp.
- Clupeosoma polusalis* referred to *Hemisopsis*, SWINHOE, p. 139, Ann. Nat. Hist. viii.
- Commotria laticostella*, Amazons, HAMPSON, p. 343, pl. lii, fig. 14, Romanoff Mém. viii, n. sp.
- Corcya translineella*, Réunion, HAMPSON, p. 492, pl. li, fig. 26, t. c., n. sp.
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- Craneophora sumatrana*, Sumatra, HERING, p. 25, Ent. Zeit. Stettin lxii, n. sp.
- Orocidophora butleri*, pl. xv, fig. 12, p. 480, *obscuralis*, China, *C. ? gensanalis*, Corea, fig. 9, p. 481, SOUTH, Tr. ent. Soc. London 1901, n. spp.
- Cydalima violalis*, Sumatra, HERING, p. 246, Ent. Zeit. Stettin lxii, n. sp.
- Diathraustodes fulvofusa*, China, HAMPSON, p. 442, Tr. ent. Soc. London 1901, n. sp.

- Dichrocrocis bicodula*, Sumatra, HERING, p. 94, Ent. Zeit. Stettin lxii, n. sp.
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Dolassa plumbolineella, Queensland, HAMPSON, p. 489, pl. liv, fig. 10, t. c., n. sp.
Dysodia angulata, Sierra Leone, WARREN, p. 6, Nov. Zool. viii; *D. binocularata*, Namaqua Land, WARREN, p. 203, t. c. : n. spp.
Eclipsiodes crypserythra, New South Wales, LOWER, p. 68, Tr. R. Soc. S. Austral. xxv, n. sp.
Edulica n. g. type *compedella* Zell., p. 122, with *E. rufalis* n. sp., Madagascar, pl. xlviii, fig. 8, p. 123, HAMPSON, Romanoff Mém. viii.
Eleusina n. g. *Phycitinae*, p. 210, type *guttella* Snell., with *E. homæosomella* n. sp., Natal, pl. li, fig. 1, p. 211, HAMPSON, t. c.
Ematheudes tunesiella, Tunis, RAGONOT, p. 335, pl. xlii, fig. 22, Romanoff Mém. viii, n. sp.
Emmalocera gamsanalis, Corea, SOUTH, p. 405, pl. xiv, fig. 30, Tr. ent. Soc. London 1901; *E. radiatella*, pl. lii, fig. 21, *longiramella*, fig. 16, p. 315, Australia, *laminella*, pl. li, fig. 8, p. 318, Africa, HAMPSON, RAGONOT, Romanoff Mém. viii : n. spp.
Enchocnemidia bracteata, Sumatra, HERING, p. 252, Ent. Zeit. Stettin lxii, n. sp.
Encystia n. g. *Phycitinae*, for *E. bonhoti* n. sp., Bahamas, HAMPSON, p. 256, Ann. Nat. Hist. vii.
Endommasis n. g. for *E. nigritella* n. sp., Brazil, pl. xlix, fig. 20, HAMPSON, p. 124, Romanoff Mém. viii.
Endotricha affinalis, Tsuruga, SOUTH, p. 418, pl. xiv, fig. 22, Tr. ent. Soc. London 1901; *E. affinalis*, Sumatra, HERING, p. 45, Ent. Zeit. Stettin lxii : n. spp.
Enosima n. g. *Anerastini*, p. 389, for *E. neesimella*, pl. xliii, fig. 22, RAGONOT, *flavescentella*, pl. xl, fig. 18, China, p. 390, *venella*, fig. 19, HAMPSON, *vectiferella*, pl. xlii, fig. 24, RAGONOT, p. 391, n. spp., Romanoff Mém. viii.
Entephria jaguaralis var. *chinensis*, SOUTH, p. 446, pl. xiv, fig. 2, Tr. ent. Soc. London 1901.
E. pulchratis, Rangoon, SWINHOK, p. 135, Ann. Nat. Hist. viii; *E. callidalis*, Bahamas, HAMPSON, p. 259, Ann. Nat. Hist. vii : n. spp.
Ephestia bipunctella, Bahamas, HAMPSON, p. 255, Ann. Nat. Hist. vii; *E. inductella*, Amasia, RAGONOT, pl. xxxiv, fig. 3, p. 283, *interfusella*, Hadjin, HAMPSON, pl. xxxiv, fig. 17, p. 290, *rectivittella*, Madagascar, pl. xlii, fig. 19, p. 293, RAGONOT, *micaceola*, pl. xlix, fig. 17, Mexico, *disparella*, pl. xxxiv, fig. 25, Broussa, p. 298, *suffusella*, Algeria, pl. xlix, fig. 18, p. 304, HAMPSON, Romanoff Mém. viii : n. spp.
Ephestiodes gilvescentella, larva, COQUILLETT, p. 86, J. N. York ent. Soc. ix.
E. uniformella, *granulella*, Bahamas, HAMPSON, p. 256, Ann. Nat. Hist. vii, n. spp.
Epidauria n. g., p. 405, type *Anerastia transversariella* Zell., with *E. phaniciella*, Syria, pl. lii, fig. 5, RAGONOT, *discella*, Mardin, HAMPSON, pl. xl, fig. 14, p. 407, n. spp., Romanoff Mém. viii.
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Etiella melanella, N. Australia, pl. lvii, fig. 24, p. 558, HAMPSON, t. c., n. sp.
Erythphlebia n. g. *Anerastini*, p. 393, with *E. enervella* n. sp., Queensland, pl. xxxix, fig. 24, p. 394, HAMPSON, t. c.
Eucallionyma n. n. for *Callionyma* Meyr., RAGONOT, p. 430, Romanoff Mém. viii.
Eurrhyarodes leechi, China, SOUTH, p. 450, pl. xv, fig. 15, Tr. ent. Soc. London 1901, n. sp.

- Eurycreon oculifera*, Sumatra, HERING, p. 98, Ent. Zeit. Stettin lxii, n. sp.
- Euzophera depauperatella*, Beyrout, p. 41, pl. xxiv, fig. 23, *diminutella*, Japan, p. 45, pl. xliii, fig. 15, *nilghirisella*, p. 47, pl. vi, fig. 18, India, *arcuatella*, Sicily, p. 49, pl. xxxii, fig. 2, *immundella*, Europe, p. 65, pl. xxxi, fig. 8, RAGONOT, Romanoff Mém. viii, n. spp.
- Euzopherodes* n. g., HAMPSON, type *E. albicans*, RAGONOT, n. sp., Calcutta, pl. xxxi, fig. 23, p. 79, t. c.
- Evergestis dyaralis*, Florida, FERNALD, p. 49, J. N. York Ent. Soc. ix, n. sp.
- Fossifrontia* n. g. *Anerastini*, p. 338, for *F. leuconeurella* n. sp., Queensland, p. 339, pl. lii, fig. 19, HAMPSON, Romanoff Mém. viii.
- Getulia fulviplagella*, S. Africa, pl. lvii, fig. 22, p. 556, HAMPSON, t. c., n. sp.
- Glyphodes hageni*, Sumatra, HERING, p. 265, Ent. Zeit. Stettin lxii, n. sp.
- Goniorthynchus* Hamps., an error, SWINHOE, p. 137, Ann. Nat. Hist. viii.
- Harpagoneura hepialivora*, Queensland, HAMPSON, p. 464, pl. liii, fig. 19, Romanoff Mém. viii, n. sp.
- Hedylepta trizonalis*, Lombok, HERING, p. 303, Ent. Zeit. Stettin lxii, n. sp.
- Hemiloba* n. g. *Nymphulida*, for *H. excisa* n. sp., Assam, SWINHOE, p. 24, Ann. Nat. Hist. viii.
- Heosphora polyactinia*, Natal, p. 384, pl. lii, fig. 2, HAMPSON, Romanoff Mém. viii, n. sp.
- Herculia bilinealis*, China, SOUTH, p. 427, pl. xiv, fig. 20, Tr. ent. Soc. London 1901; *H. nitidiciliatis*, Sumatra, HERING, p. 36, Ent. Zeit. Stettin lxii : n. spp.
- Heterographis niveicostella*, Askhabad, pl. xxix, fig. 7, p. 149, *umbrilimbella*, E. India, pl. vi, fig. 19, p. 151, *decolorella*, Margelan, pl. xlii, fig. 14, p. 158, *egyptiacella*, Red Sea, pl. xxx, fig. 19, p. 160, *ignistrigella*, Texas, pl. xxx, fig. 8, p. 166, *ustocapitella*, pl. xxx, fig. 12, p. 172, *ocellella*, pl. xlviii, fig. 13, p. 173, S. Africa, RAGONOT, Romanoff Mém. viii, n. spp.
- Heteromicta ochraceella*, pl. liv, fig. 1, *nigricostella*, fig. 3, p. 455, Queensland, HAMPSON, Romanoff Mém. viii, n. spp.
- Homacosoma mucidellum*, larva, COQUILLETT, p. 85, J. N. York ent. Soc. ix.
- H. anaspila*, New Zealand, MEYRICK, p. 566, Tr. ent. Soc. London 1901; *H. terminella*, Natal, pl. xlix, fig. 6, p. 234, *fuscella*, Bombay, pl. xxxiv, fig. 3, p. 237, HAMPSON, *inustella*, France, pl. xxxii, fig. 16, p. 242, *subcretacella*, Japan, pl. xliii, fig. 18, p. 246, RAGONOT, *subolivacella*, pl. xlii, fig. 18, Amur, p. 250, HAMPSON, *nipponella*, pl. xliii, fig. 20, p. 252, *osakiella*, fig. 19, p. 254, Japan, RAGONOT, *triangulella*, Centr. Asia, pl. xxxiii, fig. 10, p. 256, *elongatella*, Bengal, pl. xxxiv, fig. 4, p. 257, HAMPSON, Romanoff Mém. viii : n. spp.
- Hosidia* n. g. *Anerastini*, p. 408, for *H. ochrineurella* n. sp., Natal, p. 409, pl. xlv, fig. 1, HAMPSON, t. c.
- Hulstia* n. g. type *Neph. undulatella* Clem., HAMPSON, p. 127, t. c.
- Hyphantidium funerellum*, Japan, p. 75, pl. xliii, fig. 16, *vinaceellum*, Syria, p. 77, pl. xlviii, fig. 1, *subelutellum*, Madagascar, p. 78, pl. xxvi, fig. 11, RAGONOT, Romanoff Mém. viii, n. spp.
- Hypogryphia rufifasciella*, Australia, pl. xlviii, fig. 26, *atriparsella*, pl. lv, fig. 7, p. 193, HAMPSON, Romanoff Mém. viii, n. spp.
- Hyporatasia* n. g. for *allotriella* H.-S., RAGONOT, p. 5, Romanoff Mém. viii.
- Hypsotropa infumata*, Natal, HAMPSON, pl. xxxix, fig. 8, *solipunctella*, Japan, RAGONOT, pl. xliii, fig. 23, p. 377, t. c., n. spp.
- Lamoria jordanis*, India, RAGONOT, p. 435, pl. xlv, fig. 5, *pachylepidalis*, Queensland, HAMPSON, pl. liii, fig. 3, p. 441, Romanoff Mém. viii, n. spp.
- Laodamia argenteilavella*, Queensland, pl. lvii, fig. 15, p. 552, HAMPSON, t. c., n. sp.
- Leechia* n. g. *Schaenobiinae*, for *L. sinuosalis*, pl. xiv, fig. 5, *bilinealis* n. spp. China, SOUTH, p. 400, Tr. ent. Soc. London 1901.

- Lepidoplaga flavicinctalis* = (*longicorpus* Warr. & *elongalis* Warr.), SWINHOE, p. 138, Ann. Nat. Hist. viii.
- Lophothoracia* n. g. near *Cremnophila*, for *L. omphalella* n. sp., Queensland, HAMPSON, pl. lvi, fig. 20, p. 537, Romanoff Mém. viii.
- Loxostege obliteralis*, life-history, CHITTENDEN, pp. 102-107, cuts, Bull. U. S. Dep. Agric. ent. xxvii.
- Lympha* n. g. for *chalybella* Ev., RAGONOT, p. 10, Romanoff Mém. viii.
- Mabillia zambeziella*, Africa, HAMPSON, pl. lv, fig. 9, p. 512, Romanoff Mém. viii, n. sp.
- Marasmia floridalis*, Palm Beach, FERNALD, p. 49, J. N. York ent. Soc. ix, n. sp.
- Margaronia lucretila*, Solomon Ids., SWINHOE, p. 137, Ann. Nat. Hist. viii, n. sp.
- Megasis barrettæ*, S. Africa, pl. lvii, p. 17, p. 557, HAMPSON, Romanoff Mém. viii, n. sp.
- Melissoblyptus fuscolumbella*, N. America, RAGONOT, p. 485, pl. xlvii, fig. 11, *variegatella*, Borneo, HAMPSON, p. 486, pl. liv, fig. 19, t. c., n. spp.
- Mescinia* n. g., p. 83, with *M. discella* n. sp., Jalapa, p. 84, pl. xlix, fig. 1, HAMPSON, t. c.
- Mesciniadia* n. g. for *infractalis* Walk., HAMPSON, pl. xlviii, fig. 7, p. 121, t. c.
- Mesciniodes* n. g. *Phycitinae*, for *M. subinfractalis* n. sp., Borneo, HAMPSON, p. 27, pl. xlviii, fig. 6, t. c.
- Metachrysis* n. g. *Galleriinae*, for *M. acyperella* n. sp., Fergusson Id., pl. liii, fig. 17, p. 504, HAMPSON, t. c.
- Metallosticha* n. g. type *Myelois argyrogrammos*, HAMPSON, p. 69, t. c.
- Metaraphia* n. g. *Galleriinae*, p. 494, for *M. postlutesella* n. sp., Borneo, pl. lv, fig. 2, p. 495, HAMPSON, t. c.
- Metasia paganalis*, pl. xv, fig. 6, *vicanalis*, fig. 8, p. 489, *morbidalis*, p. 490, China, SOUTH, Tr. ent. Soc. London 1901, n. spp.
- Metasiodes* and *Blepharomastix*, synonymy, SWINHOE, p. 137, Ann. Nat. Hist. viii.
- Metephestia* n. g. for *simplicula* Zell., HAMPSON, p. 87, Romanoff Mém. viii.
- Meyrickia* n. g. for *Heteromicta lutro* Zell., pl. xlvi, fig. 8, RAGONOT, p. 456, Romanoff Mém. viii.
- Meyrickiella* n. g. for *Hypophana homosema* Meyr., HAMPSON, pl. xxvi, fig. 15, p. 86, Romanoff Mém. viii.
- Microchlora* n. g. *Galleriinae*, for *M. eariasella* n. sp., Celebes, pl. liv, fig. 13, p. 468, HAMPSON, t. c.
- Moodna bisinuella*, Orizaba, pl. xlix, fig. 13, *olivella*, Brazil, fig. 12, p. 268, *elongatella*, Orizaba, fig. 14, p. 269, HAMPSON, t. c., n. spp.
- Musotima nubilalis*, China, SOUTH, p. 435, pl. xiv, fig. 27, Tr. ent. Soc. London 1901, n. sp.
- Nacoleia gratalis*, synonymy, SWINHOE, p. 137, Ann. Nat. Hist. viii.
- N. immundalis*, pl. xv, fig. 4, *ochrimaculalis*, fig. 28, China, p. 460, *satsumalis*, Japan, p. 461, *maculalis*, China, fig. 7, p. 462, SOUTH, Tr. ent. Soc. London 1901, n. spp.
- Nagia incomitata* referred to *Chalcidoptera*, SWINHOE, p. 25, Ann. Nat. Hist. viii.
- Nephopteryx ephestiella*, Bahamas, HAMPSON, p. 257, Ann. Nat. Hist. vii, n. sp.
- Neurophyseta calla*, Trinidad, KAYE, p. 153, pl. vi, fig. 14, Tr. ent. Soc. London 1901, n. sp.
- Nonia* n. g. for *Homæosoma exiguella* Rag., HAMPSON, pl. xlix, fig. 7, p. 260, Romanoff Mém. viii.
- Numonia homæosomidia*, Malay Penins., HAMPSON, p. 511, pl. lii, fig. 24, t. c., n. sp.

- Nyctegretis triangulella*, Japan, RAGONOT, p. 29, pl. xliii, fig. 17, Romanoff Mém. viii, n. sp.
- Nymphula inconsequens* Warr. referred to *Tabidia*, SWINHOE, p. 136, Ann. Nat. Hist. viii.
- N. incurvalis*, China, SOUTH, p. 434, Tr. ent. Soc. London 1901, n. sp.
- Odontarthria subfuscella*, Queensland, pl. lv, fig. 24, p. 522, HAMPSON, Romanoff Mém. viii, n. sp.
- Oligochroa atrisquamella*, Queensland, pl. lvii, fig. 19, p. 551, HAMPSON, t. c., n. sp.
- Oligostigma eromenalis*, synonymy, SWINHOE, p. 135, Ann. Nat. Hist. viii.
- O. sanguinsecta*, Borneo, SWINHOE, p. 25, t. c., n. sp.
- Omphalocera hirta*, China, SOUTH, p. 428, pl. xv, fig. 11, Tr. ent. Soc. London 1901, n. sp.
- Omphalophora* n. g. *Galleriinae*, p. 427, for *O. rubrella* n. sp., Java, pl. liii, fig. 13, p. 428, HAMPSON, Romanoff Mém. viii.
- Orocrambus thymiaestes*, New Zealand, MEYRICK, p. 567, Tr. ent. Soc. London 1901, n. sp.
- Orthaga basalis*, Japan, SOUTH, p. 417, Tr. ent. Soc. London 1901, n. sp.
- Osakia* n. g. *Anerastini*, p. 318, for *O. lineolella* n. sp., Japan, p. 319, pl. xliii, fig. 21, RAGONOT, Romanoff Mém. viii.
- Oxybia* n. g. for *Tinea transversella* Dup., HAMPSON, p. 110, Romanoff Mém. viii.
- Ozydisia* n. g. near *Sandrabatis* for *O. hyperythrella* n. sp., Australia, pl. lvi, fig. 18, p. 535, HAMPSON, t. c.
- Ozamia* n. g. for *Trachonitis lucidalis* Walk., pl. xxxii, fig. 11, p. 34, RAGONOT, Romanoff Mém. viii.
- Pachyarches advena*, Australia etc., HERING, p. 248, Ent. Zeit. Stettin lxii, n. sp.
- Pachyzancla distincta*, Trinidad, KAYE, p. 156, pl. vi, fig. 20, Tr. ent. Soc. London 1901; *P. mimeticalis*, Sumatra, HERING, p. 108, Ent. Zeit. Stettin lxii; *P. submarginalis*, Borneo, SWINHOE, p. 26, Ann. Nat. Hist. viii : n. spp.
- Pagyda pulverulenta*, India, SWINHOE, p. 136, t. c., n. sp.
- Pannucha subbasalis*, p. 30, *fumida*, p. 32, Sumatra, HERING, Ent. Zeit. Stettin lxii, n. spp.
- Paralipsa decolorella*, pl. lv, fig. 3, p. 474, *erubella*, pl. liii, fig. 20, p. 475, Fergusson Id., HAMPSON, Romanoff Mém. viii, n. spp.
- Paraphomia* n. g. *Galleriinae*, p. 501, for *P. vinctella*, Australia, etc., pl. lv, fig. 1, *natalensis*, Weenen, fig. 5, n. spp., p. 502, HAMPSON, t. c.
- Paramatta* n. g. for *E. ensiferella* Meyr., HAMPSON, p. 366, pl. xxxix, fig. 2, t. c.
- Paraphycita* n. g. *Galleriinae* for *P. epiperckiella* n. sp., Timor, pl. liii, fig. 9, p. 451, HAMPSON, t. c.
- Parazancloides* n. g. *Galleriinae* for *P. chrysaugella* n. sp., New Guinea, HAMPSON, p. 490, pl. liii, fig. 18, t. c.
- Parbattia latifascialis*, China, p. 482, pl. xv, fig. 17, SOUTH, Tr. ent. Soc. London 1901, n. sp.
- Paroxyptera* n. g. for *Achreia filiella* Saalm., RAGONOT, p. 503, pl. xlv, fig. 24, Romanoff Mém. viii.
- Parthenodes triangularis*, p. 438, pl. xiv, fig. 26, *pallidalis*, p. 439, fig. 29, China, SOUTH, Tr. ent. Soc. London 1901, n. spp.
- Patagonia* n. g. for *Hom. magellanella* Rag., HAMPSON, p. 226, pl. xxxiii, fig. 25, Romanoff Mém. viii.
- Patania floccosa*, Sumatra, HERING, p. 100, Ent. Zeit. Stettin lxii, n. sp.
- Pectinigera nigritella*, W. Africa, p. 353, pl. xxxvii, fig. 13, *paranensis*, Brazil, pl. lv, fig. 6, p. 355, HAMPSON, Romanoff Mém. viii, n. spp.
- Phlyctaenia rubigalis*, life-history, injurious habits, CHITTENDEN, pp. 7-19,

- Bull. U. S. Dep. Agric. Ent. xxvii; *P. ferrugalis*, life-history, FLETCHER & GIBSON, pp. 140-144, Canad. Ent. xxxiii.
- Phlyctænodes sticticalis*, larval food-plant, SCHILLE, p. 105, Soc. Ent. xvi.
- P. confusalis*, China, pl. xv, fig. 2, p. 486, SOUTH, Tr. ent. Soc. London, 1901, n. sp.
- Pilocrocis dohrnialis*, Sumatra, HERING, p. 289, Ent. Zeit. Stettin lxii; *P. plumbilinea*, Trinidad, KAYE, p. 154, pl. vi, fig. 4, Tr. ent. Soc. London 1901 : n. spp.
- Pionea aureolalis*, synonymy, SWINHÖE, p. 138, Ann. Nat. Hist. viii.
- P. acutangulata*, Assam, SWINHÖE, p. 26, t. c.; *P. pallidalis*, pl. xv, fig. 22, p. 490, *planalis*, China, *pseudocrocealis*, fig. 14, Japan, p. 492, *puralis*, fig. 16, p. 493, *punctiferalis*, fig. 23, *mendicalis*, fig. 10, p. 494, China, SOUTH, Tr. ent. Soc. London 1901 : n. spp.
- Platytes sinuosellus*, China, SOUTH, p. 395, pl. xiv, fig. 8, t. c., n. sp.
- Polyocha flarantella*, Madagascar, pl. xlv, fig. 24, p. 323, RAGONOT, Romanoff Mém. viii, n. sp.
- Polythlipta maculalis*, China, SOUTH, p. 475, pl. xv, fig. 3, Tr. ent. Soc. London 1901, n. sp.
- Poujadia verecundella*, Colombia, HAMPSON, p. 347, pl. xxxvii, fig. 2, Romanoff Mém. viii, n. sp.
- Prasinoxena bilineella*, Amboyna, HAMPSON, p. 500, pl. liv, fig. 17, t. c., n. sp.
- Prionopteryx naimorellus*, China, SOUTH, p. 399, pl. xiv, fig. 24, Tr. ent. Soc. London 1901, n. sp.
- Pristarthria caustella*, S. Africa, pl. lvii, fig. 13, p. 548, HAMPSON, Romanoff Mém. viii, n. sp.
- Proceratia* n. g. *Phycitinae* for *P. cesariella* n. sp., Syria, pl. xlii, fig. 15, p. 197, HAMPSON, t. c.
- Prosthenia* n. g. *Galleriinae*, p. 450, for *P. psittacolella* n. sp., Singapore, pl. liv, fig. 11, HAMPSON, t. c.
- Psorosa myrmidonella*, Accra, pl. xlv, fig. 7, p. 103, *albunculella*, Amasia, pl. xxix, fig. 4, *flavifusciella*, Cintra, pl. xxix, fig. 2, p. 108, *tergestella*, Trieste, pl. l, fig. 2, p. 107, HAMPSON, t. c., n. spp.
- Ptyonocera* n. g. near *Piesmopoda* for *P. atrifusella* n. sp., Gambia, pl. li, fig. 16, p. 528, HAMPSON, t. c.
- Pyrallis moupinalis*, China, SOUTH, p. 423, pl. xiv, fig. 19, Tr. ent. Soc. London 1901; *P. nigrapuncta*, Trinidad, KAYE, p. 152, pl. vi, fig. 15, Tr. ent. Soc. London 1901 : n. spp.
- Pyrausta fracidalis*, p. 50, *quadrigalis*, p. 53, *retostalis*, p. 54, *abdicatrix*, p. 57, *byrrhalis*, p. 58, *ravalis*, p. 59, Sumatra, HERING, Ent. Zeit. Stettin lxii; *P. fuscobrunnealis*, pl. xv, fig. 7, *hampsoni*, fig. 21, p. 498, *delicatalis*, fig. 27, p. 499, *leechi*, fig. 29, *genialis*, pl. xiv, fig. 18, *griseociliatis*, pl. xv, fig. 5, p. 501, *vicinalis*, fig. 30, p. 502, *moupinalis*, *obstipalis*, pl. xiv, fig. 10, p. 504, *pygmaealis*, p. 505, *contigualis*, fig. 23, p. 506, *rufilis*, fig. 12, *quadrimaculalis*, fig. 13, p. 507, *oberthuri*, fig. 11, p. 508, *mandarinialis*, fig. 18, *tortualis*, fig. 17, p. 509, *punctilinealis*, fig. 14, p. 510, *mundulus*, pl. xv, fig. 19, p. 511, *postulbalis*, fig. 13, p. 512, China, SOUTH, Tr. ent. Soc. London, 1901; *P. costimaculalis*, Florida, FERNALD, J. N. York Ent. Soc. ix, p. 50, n. sp.
- Rehimena straminealis*, China, SOUTH, p. 449, pl. xiv, fig. 21, Tr. ent. Soc. London 1901, n. sp.
- Rhodochrysa* n. g. for *R. superbella* n. sp., Natal, pl. xxxix, fig. 25, p. 387, HAMPSON, Romanoff Mém. viii.
- Rhodophaea semiustella*, Madagascar, pl. lv, fig. 16, p. 518, *melanoplaga*, Brazil, fig. 18, p. 519, HAMPSON, t. c., n. spp.
- Sacada contigua*, China, SOUTH, p. 430, pl. xv, fig. 20, Tr. ent. Soc. London 1901; *S. pusilla*, Sumatra, HERING, p. 41, Ent. Zeit. Stettin lxii : n. spp.

- Salsbria ceroprepiaella*, Queensland, pl. lvii, fig. 16, p. 550, HAMPSON, Romanoff Mém. viii, n. sp.
- Salinaria* n. g. for *diffusella* Chr., RAGONOT, p. 11, Romanoff Mém. viii.
- Saluria tripartitella*, Natal, p. 359, pl. xxxix, fig. 19, *dichroelia*, Australia, fig. 1, p. 363, HAMPSON, Romanoff Mém. viii, n. spp.
- Samarina micaceola*, Borneo, HAMPSON, pl. lv, fig. 12, p. 516, t. c., n. sp.
- Scoparia anisophragna*, N. S. Wales, LOWER, p. 67, Tr. R. Soc. S. Austral. xxv; *S. torodes*, p. 568, *parachalca*, *organea*, p. 569, *alopicias*, *chalara*, p. 570, New Zealand, MEYRICK, Tr. ent. Soc. London 1901 : n. spp.
- Scotomera woollastoni*, Egypt, N. ROTHSCHILD, p. 433, Nov. Zool. viii, n. sp.
- Setiostoma*, see *Tineida*.
- Simathistis leechi*, China, pl. xv, fig. 24, p. 513, SOUTH, Tr. ent. Soc. London 1901, n. sp.
- Siculodes rufifimbria*, Panama, WARREN, p. 435, Nov. Zool. viii, n. sp.
- Statia* n. g. *Galleriina*, p. 443, for *S. chlorella* n. sp., Peru, p. 444, pl. xlv, fig. 14, RAGONOT, Romanoff Mém. viii.
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- Platyptilia bertrami* var. n. *foculella*, FUCHS, p. 71, Jahrb. nassau. Ver. liv.

(D.) *DIPTERA.*

[Cf. AITKEN (13), ANNETT & DUTTON (28), AUSTEN (48-50), BANKS (65), BARFORD (70), BECKER (79-81), BEZZI (105, 106), BILLET (109), BISCHOF (113), BLANCHARD (119-121), BRAUER (153), BRUES (172, 173), CARPENTER (214, 215), CHRISTOPHERS (248), COCKERELL (259, 276), COLLEDGE (287), COLLIN (288), COQUILLETT (290-299, 957, 1013), CZERNY (313), DAVIS (327), DEWITZ (335), DOANE (361), DÖNITZ (373), DYAR (392), ENDERLEIN (412-414), EVANS (423), FERTON (454), FUNK (522), GALLI-VALERIO (528, 529), GIACOMINI (552), GILES (556-558), GIRSCHNER (363), GRANDPRÉ & CHARMOY (574), GRASSI (575-577), GREEN (579), GRIMSHAW (581), GUYOT (590, 591), HENDEL (613-616), HERZ (618), HOUARD (644), HOUGH (645), HOWARD (647, 649-651), HUNTER (659), HUTCHINS (660), HUTTON (661), JACOBS (668), JOLY (693), KELLOGG (710, 712-714), KERTÉSZ (720-725), KIEFFER (728, 735), KINCAID (736), KULAGIN (795), LAVERAN (815-817), LEBEDINSKY (820), LÉCAILLON (821), LICHTWARDT (843), LISTON (850, 851), DE MEIJERE (907, 908), MELANDER (910), MINOT (923), MEUNIER (918, 920), MÜGGENBURG (952), NEEDHAM & BETTEN (957), NOACK (973), NUTTALL (977, 978), NUTTALL & SHIPLEY (979), OLDENBERG (986), PANDELLÉ (1001), PANTEL (1002, 1003), PERGANDE (1013), PLESKE (1070-1072), POLAILLON (1073), PORCHINSKY (1078), RÁDL (1098, 1099), RIBBING (1163), RICARDO (1164, 1165), ROBERTSON (1174), ROSS (1178-1181), ROUBAUD (1190), SCHLECHTENDAL (1217), SCHNEIDEMÜHL (1221), SCHNUSE (1223), SCHRÖDER (1229, 1230), SCUDDER (1255), SERGENT (1277), SILVESTRI (1290), SMITH (1308), STEIN (1326), STROBL (1341), THEOBALD (1358-1360), TOWNSEND (1375), TROTTER (1379), TRYON (1382), VERRALL (1413-1416), WAHL (1426), WASMANN (1445), WHEELER (1482, 1484), WILKINSON (1487), WILLISTON, ALDRICH, WHEELER, MELANDER (566), YERBURY (1503), ZEHNTNER (1508), ZIEMANN (1513).]

Catalogue of S. American *Diptera*, Part II, HUNTER (659).

Diptera, reared from cow-manure, HOWARD (651).

Fossil *Diptera*, SCUDDER (1255).

Classification of *Diptera*, COQUILLETT (292).

Mode of determining *Diptera*, OSTEN SACKEN (992).

Comparative sketch of the prothoracic spiracle of pupæ of *Diptera*, DE MEIJERE (907).

Larvæ like *Vermileo* and *Microdon* in Borneo, SHELFORD, Rep. Brit. Ass. 1901.

Phagocytosis in *Diptera*; *Holorusia* and *Blepharocera*, compared, KELLOGG (710).

CECIDOMYIIDÆ.

Cecidomyiida found in amber, MEUNIER (918).

Biological account of *Cecidomyiida* completed, KIEFFER (728).

Asphondylia phlomidis, Greece, TROTTER, p. 345, Bull. Soc. ent. France 1901; *A. gutierreziae*, New Mexico, COCKERELL, p. 23, Canad. Ent. xxxiii : n. spp.

- Cecidomyia*; correct application of the name, OSTEN SACKEN, pp. 40–43, Ent. Mag. xxxvii; *C. cratægi*, an external parasite of larva, GHIGI, pp. 193–196, Bull. Soc. ent. Ital. xxxiii.
Coccopsis n. g. for *C. marginata* n. sp., Holland, with peculiar larva, DE MEIJERE, p. 1, pl. i, Tijdschr. Ent. xlv.
Diplosis violicola, notes, CHITTENDEN, pp. 47–49, cuts, Bull. U. S. Dep. Agric. ent. xxvii.
D. acarivora, Java, ZEHNTNER (1508), p. 11, pl. i, figg. 7–17, n. sp.
Janetiella fortiana, Italy, TROTTER, p. 346, Bull. Soc. ent. France 1901 n. sp.
Rhopalomyia achilleæ, Philippopolis, TROTTER, p. 346, t. c., n. sp.

TERMITODASTIDÆ.

Termitodastidæ: n. fam. for the following:

Termitomastus n. g. for *T. leptoproctus* n. sp., S. America with *Anoplo-termes*, SILVESTRI, p. 1, No. 395, Boll. Mus. Torino xvi.

MYCETOPHILIDÆ.

Mycetophilidæ in amber, MEUNIER (918).

- Acnemia flaveola*, N. America, COQUILLETT, p. 598, P. U. S. Mus. xxiii, n. sp.
Anatella brevifurca, Austria, STROBL, p. 178, Jahrb. Mus. Karnten xxvi, n. sp.
Bolitophila montana, New Hampshire, COQUILLETT, p. 593, P. U. S. Mus. xxiii, n. sp.
Ceroplatus clausus, N. America, COQUILLETT, p. 594, t. c., n. sp.
Docosia longicornis, *obscura*, *vittata*, N. America, COQUILLETT, p. 597, t. c., n. spp.
Dynatosoma thoracica, Illinois, COQUILLETT, p. 598, t. c.; *D. gracile*, Peru, KERTÉSZ, p. 403, Termes. Fuzetek xxiv : n. spp.
Erechia analis, N. America, COQUILLETT, p. 598, P. U. S. Mus. xxiii, n. sp.
Leptomorphus parvulus, p. 597, *hyalinus*, p. 598, N. America, COQUILLETT, t. c., n. spp.
Macrocera nebulosa, N. America, COQUILLETT, p. 594, t. c., n. sp.
Mycetophætus, fossil n. g., see Palæoent., p. 113.
Mycetophila tieffi, Austria, STROBL, p. 174, Jahrb. Mus. Karnten xxvi, n. sp.
Phronia emarginata, p. 176, *appropinquata*, p. 177, Austria, STROBL, t. c., n. sp.
Platyura inops, N. America, COQUILLETT, p. 594, P. U. S. Mus. xxiii, n. sp.
Platyura elegans, Peru, KERTÉSZ, p. 404, Termes. Fuzetek xxiv; *P. fuscocostata*, p. 2, *hawaiiensis*, p. 3, *insularis*, p. 4, Hawaiian Ids., GRIMSHAW, Fauna Hawaiiensis iii : n. spp.
Polylepta tibialis, N. America, COQUILLETT, p. 596, P. U. S. Mus. xxiii, n. sp.
Rutrophora n. g. for *R. rufina* n. sp., Corsica, SCHNUSE, p. 149, pl. iii, figg. 17–20, Zeitschr. Hym. Dipt. i.
Rymosia tieffi, Austria, STROBL, p. 179, Jahrb. Mus. Karnten xxvi, n. sp.
Sciara inconstans, habits, metamorphosis, CHITTENDEN, pp. 108–113, Bull. U. S. Dep. Agric. ent. xxvii.
S. molokaiensis, Hawaiian Ids., GRIMSHAW, p. 2, Fauna Hawaiiensis iii, n. sp.
Sciophila pseudo-cinereascens, Austria, STROBL, p. 181, Jahrb. Mus. Karnten xxvi; *S. subcærulea*, p. 595, *flavohirta*, p. 596, N. America, COQUILLETT, P. U. S. Mus. xxiii : n. spp.
Tetragoneura bicolor, *pimpla*, N. America, COQUILLETT, p. 595, t. c., n. spp.

CHIRONOMIDÆ.

- Ceratopogon*; larvæ described, KIEFFER, pp. 216-220, cuts, *C. boleti*, *latipalpis*, *resincola*, n. spp.? Allg. Zeitschr. Ent. vi; *C. bicolor*, ♂, KERTÉSZ, p. 189, Zichy Ergebn. ii.
- C. galapagensis*, Galapagos, COQUILLETT, p. 372, P. Washington Ac. iii; *C. elegans*, p. 599, *smithi*, *expolitus*, *johnsoni*, *pulvereus*, p. 600, *barberi*, *specularis*, *fimbriatus*, p. 601, *pergandei*, *variipennis*, *griseus*, *mutabilis*, p. 602, *websteri*, *cockerelli*, *guttipennis*, p. 603, *stellifer*, *levis*, *sanguisuga*, *biguttatus*, *melleus*, p. 604, *cinctus*, *fuscus*, *schwarzii*, p. 605, *subasper*, *nebulosus*, *politus*, *antennalis*, p. 606, *diversus*, *viridis*, p. 607, N. America, COQUILLETT, P. U. S. Mus. xxiii : n. spp.
- Chironomus halteralis*, Washington, COQUILLETT, p. 17, Ent. News Philad. xii; *C. brachialis*, *teniapennis*, p. 607, *nitidulus*, p. 608, N. America, COQUILLETT, P. U. S. Mus. xxiii; *C. hawaiiensis*, Oahu, GRIMSHAW, p. 4, Fauna Hawaiiensis iii : n. spp.
- Eurycnemus scitulus*, New Jersey, COQUILLETT, p. 608, P. U. S. Mus. xxiii, n. sp.
- Orthocladus par*, New Jersey, COQUILLETT, p. 608, t. c., n. sp.
- Tanyptus johnsoni*, *bifasciatus*, New Jersey, COQUILLETT, p. 609, t. c., n. spp.
- Tanytarsus lacteiclavus*, Kauai, GRIMSHAW, p. 5, Fauna Hawaiiensis iii, n. sp.

CULICIDÆ.

- Monograph of *Culicidæ*, THEOBALD (1358). The synonymy given in this work is not extracted here, and the varieties are not mentioned, but all the new genera and species are given.
- Classification of mosquitoes, THEOBALD (1360).
- General work on mosquitoes, including synopsis of N. American forms, HOWARD (647).
- Prodromus of Indian *Culicidæ*, GILES, pp. 603-610, J. Bombay Soc. xiii.
- Mechanics of movements of larva and pupa; preservation of the species, *Culex pipiens*, LÉCAILLON (821).
- Gold-fish as destroyers of larvæ, UNDERWOOD (1408).
- Ovaries and oogenesis, *Culex* and *Anopheles*, KULAGIN (795).
- Mauritian mosquitoes; general work, anatomy, etc., GRANDPRÉ & CHARMOY (574).
- Mosquitoes in Madagascar, habits, JOLY (693).
- Culicidæ* in W. Africa, ROSS, ANNETT & AUSTEN (1181).
- Distance travelled by mosquitoes, DAVIS, p. 185, Ent. News Philad. xii.
- Hibernation of *Culicidæ* in England, ANNETT & DUTTON (28).
- Anopheles* and *Culex*; anatomy, CHRISTOPHERS (248).
- Malaria and mosquitoes, historical account, anatomy and ethology of *Anopheles*, development of the malarial parasite; the propagation of malaria, GRASST (575, 576).

Malaria and mosquitoes. In this systematic part of the Record only papers containing matter of direct interest for the Zoologist are included. In "Economic," p. 94, a list of papers on "mosquitoes and malaria" is given; in it some other memoirs, not alluded to under *Culicidæ*, are included. But memoirs that are purely pathological or that deal only with the malarial parasite are not dealt with at all in Insecta.

- Aedeomyia* n. g. for *A. squamipennis* Arrib., THEOBALD, p. 218, Mon. Culicidæ ii.
- Aedes smithi*, larva, DYAR, p. 178, pl. x, fig. 1, J. N. York ent. Soc. ix.
- A. smithii*, New Jersey, COQUILLETT, p. 260, Canad. Ent. xxxiii; *A. bulleri*,

- Selangor, p. 230, *nigricorpus*, Amazons, p. 231, *pembuensis*, p. 235, *niger*, p. 237, Trop. Africa, THEOBALD, Mon. Culicidæ ii : n. spp.
- Anopheles*; anatomy, habits, *A. pseudopictus*, *superpictus*, characters, GRASSI (575, 576).
- A. pictus*, notes on, COLLEDGE, P. Soc. Queensland xvi, pp. 45-59, pls. i-iv.—Habits of *Anopheles* in Switzerland, distribution and malaria, GALLI-VALERIO etc. (528, 529).—Distribution of *Anopheles* in England, map, NUTTALL, COBBETT & STRANGEWAYS-PIGG (978).—*Anopheles*; habits, larva and imago, in East Africa, DANIELS (322).—*Anopheles*; Indian, LISTON (850, 851).—*A. pulcherrimus*, *nigerrimus*, *lindesaii*, figures, LISTON (850); other species id. (851).—*Anopheles* in India, habits etc., AITKEN (13).—*Anopheles* and *Culex* larvæ in winter, GALLI-VALERIO & NARBEL (528).—Hibernation in Britain, ANNETT & DUTTON (28).—*A. quadrimaculatus* in Maine, PACKARD, p. 191, Psyche ix.—*A. maculipennis*, egg, larva, larval habits, NUTTALL & SHIPLEY (979).—*A. punctipennis*, larva, MINOT, J. Boston Soc. Med. Sci. v, pp. 325-329.
- A. paludis*, Africa, p. 128, *jamesii*, S. India, p. 134, *bigotii*, Chili, p. 135, *cinereus*, p. 161, *squamosus*, p. 167, Mashonaland, *pharoensis*, Africa, p. 169, *maculata*, Hong Kong, p. 171, *lutsii*, Rio Janeiro, p. 177, *indica*, Madras, p. 183, *rhodensis*, Mashonaland, p. 184, *minimus*, Hong Kong, p. 186, *walkeri*, Canada, p. 199, [*grabhamii*, p. 205, cf. *Cyclolepteron*], THEOBALD, Mon. Culicidæ i; *A. pseudopunctipennis*, Grenada, id. p. 305, vol. ii; *A. mauritianus*, Mauritius, GRANDPRÉ & CHARMOY (574), p. 8; *A. kochi*, Sumatra and Java, *punctulatus*, New Guinea, p. 36, *plumiger*, China, *leucopus*, Java, *leucophyrus*, Sumatra, Borneo, p. 37, DÖNITZ, Insectenbörse 1901; *A. gigas*, p. 196, *culicifacies*, listoni, p. 197, *theobaldi*, p. 198, India, GILES, Ent. Mag. xxxvii; *A. vincenti*, Tonkin, LAVERAN, p. 993, Soc. Biol. liii : n. spp.
- Armigeres* n. g. for *Culex obturbans* Walk., THEOBALD, p. 323, Mon. Culicidæ i, and cf. *Desvoidya*; *A. panalectoros* (Giles) India; id. op. cit. ii, p. 317, n. spp.
- Brachiomysia* n. g., p. 343, for *B. magna* n. sp., Sta Lucia, p. 344, THEOBALD, Mon. Culicidæ ii.
- Corethra asiatica*, India, GILES, p. 610, J. Bombay Soc. xiii; *C. brasiliensis*, Brazil, THEOBALD, p. 302, Mon. Culicidæ ii : n. spp.
- Culex*; abnormality of palpi, DYÉ & NEVEU-LEMAIRE (395); *Culex* and *Anopheles*, larval attitudes, NEVEU-LEMAIRE (960); *C. fatigans*, blood-feeding and oviposition, EVANS, P. Asiat. Soc. Bengal 1901, pp. 65-67.—*C. territans*, p. 178, pl. x, fig. 2, *confinis*, p. 179, fig. 3, larvæ, DYAR, J. N. York ent. Soc. ix.—*C. pungens*, larval habits, SMITH, Ent. News Philad. xii, pp. 153-157.
- C. jamaicensis*, Jamaica, p. 345, *microannulatus*, p. 353, *vishnui*, p. 355, E. India, *annulus*, p. 358, Hong Kong, *infula*, Perak, p. 370, *annulioris*, p. 371, *plumosus*, p. 373, Mashonaland, *dissimilis*, Sierra Leone, p. 376, *hirtipalpis*, Mashonaland, p. 378, *japonicus*, Japan, p. 385, *hirtutum*, Mashonaland, p. 392, *marinus*, Queensland, p. 396, *silvestris*, Canada, p. 406, *flavescens* hab?, p. 410, *cæcus*, Selangor, p. 413, vol. i; *canadensis*, Canada, p. 3, *morsitans*, England, p. 8, *gelidus*, Selangor, p. 20, *albitalis*, W. Africa, p. 25, *univittatus*, p. 29, *quasiunivittatus*, p. 32, (*maculicrura* = *tigripes*, Grandpré, p. 34), Mashonaland, *serratus*, S. America, p. 45, *uncus*, Selangor, p. 53, *atratus*, Jamaica, p. 55, *cinereus*, p. 58, *nigrochæta*, p. 60, W. Africa, *pseudocinereus*, Mashonaland, p. 62, *metallicus*, W. Africa, p. 63, *frenchii*, Victoria, p. 66, *longipes*, Singapore, p. 68, *freetownensis*, W. Africa, p. 69, *luteolateralis*, Durban, Perak, p. 71, *diversus*, England, p. 73, *hirtiteron*, p. 98, *spencerii*, p. 99, N. America, *ochraceus*, Mashonaland, p. 103, *trilineatus*, Burma, p. 105, *salisburyensis*, Mashonaland, p. 112, *mediolineatus*, Burma, p. 113, *infictus*, Grenada, p. 115, *scholasticus*,

- W. Indies, p. 120, *virgultus*, Rio Janeiro, p. 123, *masculus*, W. Africa, p. 125, *quasipipiens*, India, p. 136, *fouchouensis*, China, p. 137, *restuana*, Canada, p. 142, *zombaensis*, Centr. Africa, p. 143, *reesii*, p. 145, *sericeus*, p. 147, Hong Kong, vol. ii; *secutor*, Jamaica, p. 321, *nigripalpus*, Sta Lucia, p. 322, *angulatus*, Naini Tal, p. 324, *tipuliformis*, India, p. 325, *humilis*, Brazil, p. 336, vol. ii, THEOBALD, Mon. Culicidæ; *C. duttoni*, p. v, pl. i, fig. 4, *decens*, p. 7, pl. i, fig. 5, *pruina*, p. viii, pl. i, fig. 6 and pl. ii, fig. 7, *invenustus*, p. ix, and pl. ii, figg. 8, 9, *nebulosus*, p. x, pl. ii, fig. 10, *rima*, pl. ii, fig. 11, *invidiosus*, pl. ii, fig. 12, p. 11, West Africa, THEOBALD (1359); *C. tigrisipes*, Mauritius, GRANDPRÉ & CHARMOY (574), p. 6; *C. tritaniorhynchus*, p. 606, *pseudotaniatus*, gubernatoris, *bitaniorhynchus*, p. 607, *panalectoris*, *pulchriventer*, p. 608, *micropterus*, *albolineatus*, *viridiventer*, p. 609, India, GILES, J. Bombay Soc. xiii; *C. kochi*, New Guinea, DÖNTZ, p. 38, Insectenbörse 1901; *C. curriei*, N. America, COQUILLET, p. 259, Canad. Ent. xxxiii; *C. kermorganti*, New Caledonia, LAVERAN, p. 569, C.R. Soc. Biol. liii: n. spp.
- Cyclolepidopteron* n. n. for *Cycloleppteron*, BLANCHARD, p. 1046, C.R. Soc. Biol. liii.
- Cycloleppteron* n. g. for *Anopheles grabhamii*, THEOBALD, J. Trop. Med. iv, p. 234, and Mon. Culicidæ ii, p. 312.
- Deinocerites* n. g. for *D. cancer* n. sp., Antilles, THEOBALD, p. 215, Mon. Culicidæ ii.
- Desvoidya* n. n. for *Armigeres* supra, BLANCHARD, p. 1046, C.R. Soc. Biol. liii.
- Eretmapodites* n. g. for *E. quinquevittatus* n. sp., Sierra Leone, THEOBALD, p. 280, Mon. Culicidæ i.
- Janthinosoma lutzii*, Brazil, THEOBALD, p. 257, t. c., n. sp.
- Joblotia* n. n. for *Trichoprosopon* infra, BLANCHARD, p. 1046, C.R. Soc. Biol. liii.
- Limatus* n. g., p. 349, for *L. durhamii* n. sp., Brazil, p. 350, THEOBALD, Mon. Culicidæ ii.
- Mansonia* n. n. for *Panoplites* infra, BLANCHARD, p. 1046, C.R. Soc. Biol. liii.
- Megarhinus gilesii*, S. Asia, p. 227, *purpureus*, Amazons, p. 230, *lutescens*, Mashonaland, p. 233, *longipes*, Mexico, p. 241, THEOBALD, Mon. Culicidæ i, n. spp.
- Mucidus* n. g., p. 268, for *Culex alternans* Westw., etc., with *M. africanus*, p. 274, Africa, *scataphagoides*, p. 277, Buftma, n. spp., THEOBALD, t. c.
- Panoplites* n. g., p. 173, including *culex titillans* and *annulipes* with *P. pseudotitillans*, p. 178, Amazons, *uniformis*, India, p. 180, *amazonensis*, Amazons, p. 182, *annulifera*, India, p. 183, *africanus*, Trop. Africa, p. 187, n. spp., THEOBALD, Mon. Culicidæ ii.
- P. seguini*, Tonkin, LAVERAN, p. 992, C.R. Soc. Biol. liii, n. sp.
- Psorophora howardii*, S. Carolina, COQUILLET, p. 258, Canad. Ent. xxxiii, n. sp.
- Sabethes nitidus*, Brazil, THEOBALD, p. 347, Mon. Culicidæ ii, n. sp.
- Stegomyia* n. g., p. 283, for *Culex fasciatus* etc., with the following n. spp., *nigeria*, p. 303, *africana*, p. 304, Africa, *grantii*, p. 306, Trinidad, *marshallii*, p. 310, *argenteopunctata*, p. 316, *minuta*, p. 319, Mashonaland, THEOBALD, Mon. Culicidæ i.
- Stegomyia irritans*, p. iii, pl. i, fig. 2, *nigricephala*, p. iv, pl. i, fig. 3, W. Africa, THEOBALD (1359), n. spp.
- Taniorhynchus tenax*, Perak, p. 198, *annettii*, Old Calabar, p. 205, *aurites*, Bonny, p. 209, *brevicellulus*, Selangor, p. 212, THEOBALD, Mon. Culicidæ ii, n. spp.
- Toxorhynchites* n. g. near *Megarhinus*, p. 244, for *T. brevipalpis* n. sp., Natal, p. 245, THEOBALD, op. cit. i.

- Trichoprosopon* n. g., p. 283, for *T. nivipes* n. sp., Trinidad, p. 285, THEOBALD, op. cit. ii.
- Uranotenia sapphirina*, life-history, DYAR, pp. 179-182, pl. xi, J. N. York ent. Soc. ix.
- U. geometrica*, Brazil, p. 247, *annulata*, Bonny, p. 250, *domestica*, Old Calabar, p. 253, *pygmaea*, Queensland, p. 254, *cæruleocephala*, Old Calabar, p. 256, *malayi*, Selangor, p. 258, *mashonaensis*, Salisbury, p. 259, *minima*, Travancore, p. 262, *lowii*, Sta Lucia, p. 339, *socialis*, Jamaica, p. 340, THEOBALD, Mon. Culicidæ ii, n. spp.
- Wyeomyia* n. g., p. 267, for *W. aranoioides*, Perak, p. 274, *longirostris*, Rio Janeiro, p. 275, *trinidadensis*, Trinidad, p. 277, *lunata*, Rio Janeiro, p. 279, *luteoventralis*, p. 348, n. spp., and probably *Aedes pertinans* Will., THEOBALD, Mon. Culicidæ ii.

PSYCHODIDÆ.

- Pericoma ocellaris* var. n. *americana*, KINCAID, p. 194, Ent. News Philad. xii; *P. notabilis*, air nipples, erectile sacs, EATON, p. xxvii, P. ent. Soc. London 1901; *P. californica*, larva and pupa, KELLOGG, pp. 46-49, Ent. News Philad. xii.
- P. acuminata*, Austria, STROBL, p. 185, Jahrb. Mus. Karnten xxvi; *P. californica*, N. America, KINCAID, p. 195, Ent. News Philad. xii: n. spp.
- Psychoda cinerea* (= *pacifica* Kinc.), KINCAID, t. c., p. 193.
- P. signata*, opposita, p. 274, *nitida*, p. 275, N. America, BANKS, Canad. Ent. xxxiii; *P. inornata*, Hawaii, GRIMSHAW, p. 6, Fauna Hawaiensis iii: n. spp.

BIBIONIDÆ, SIMULIIDÆ.

- Bibio marci*, swarm, ROCQUIGNY-ADANSON, Feuille. Natural. xxxii, p. 22.
- Simulium*; larval food, KELLOGG, p. 166, Psyche ix.
- S. nigratarsis*, S. Africa, COQUILLETT, p. 27, P. U. S. Mus. liii, n. sp.

BLEPHAROCERIDÆ.

- Apistomyia elegans*, characters, sexes, SCHNUSE, pp. 145-149, pl. iii, figg. 1-16, Zeitschr. Hym. Dipt. i.
- Blepharocera*; larval food, KELLOGG, p. 166, Psyche ix; *B. fasciata*, ♂, OLDENBERG, p. 9, Zeitschr. Hym. Dipt. i.
- Hapalothrix lugubris*, ♀, BEZZI, p. 275, Zeitschr. Hym. Dipt. i.
- Lasiopa konigi*, Caucasus, LICHTWARDT, p. 68, Zeitschr. Hym. Dipt. i, n. sp.; *L. caucasica*, Pleske as *Cyclogaster*=(*konigi* Lichtw.), LICHTWARDT, p. 272, t. c.

TIPULIDÆ.

- Tipulidæ* injurious to trees, 4 species, FUCHS (519).
- Cylindrotoma glabrata*, larva and pupa of, MÜGGENBURG, Arch. Naturges. lxvii, Beiheft pp. 169-186, pl. v.
- Dicranomyia apicalis*, *hawaiiensis*, p. 7, *brunnea*, *kauaiensis*, *variabilis*, p. 8, *latifrons*, p. 9, Hawaiian Ids., GRIMSHAW, Fauna Hawaiensis iii, n. spp.
- Holorusia*; development of imaginal buds of wings, KELLOGG, Psyche ix, pp. 246-250; *H. rubiginosa*, larva, KELLOGG, t. c. pp. 207-213.

- Linnobius conchifera*, p. 189, *tiefti*, p. 190, Austria, STROBL, Jahrb. Mus. Karnten xxvi; *L. perkinsi*, Hawaii, GRIMSHAW, p. 6, Fauna Hawaiianensis iii : n. spp.
- Limnophila costata*, New Mexico, COQUILLETT, p. 149, Psyche ix, n. sp.
- Rhypholophus cockerellii*, New Mexico, COQUILLETT, p. 149, t. c., n. sp.
- Styringomyia didyma*, Oahu, GRIMSHAW, p. 10, Fauna Hawaiianensis iii, n. sp.
- Tipula abdominalis*, larva, NEEDHAM, p. 575, pl. xxxvi, Bull. N. York Mus. 47.
- T. illustris*, p. 97, *dorsolineata*, p. 98, *sulphurea*, *fumosa*, p. 99, *rostellata*, *cervicula*, p. 100, *bituberculata*, *helvocincta*, p. 101, *stalactoides*, *tristis*, p. 102, *simplex*, *carinata*, p. 103, *impudica*, *australis*, p. 104, *barbata*, *lamellata*, p. 105, *subtilis*, p. 106, *splendens*, *calcarata*, *clara*, p. 107, *æqualis*, p. 108, *retusa*, *translucida*, p. 109, *cincticornis*, *alvocincta*, p. 110, *cuspidata*, *bisetosa*, p. 111, *inermis*, *megaura*, p. 112, *streptocera*, *hirsuta*, p. 113, *calva*, p. 114, *concinna*, *unicincta*, p. 115, *acuta*, p. 116, *diluta*, *leucophæa*, p. 117, *incisa*, *subcinerea*, p. 118, *armata*, *albovitata*, p. 119, *albonotata*, *spectabilis*, p. 120, *contaminata*, p. 121, *abluta*, *varia*, p. 122, *albocaudata*, *cognata*, p. 123, *usitata*, *graphica*, p. 124, *decora*, *subtenuicornis*, p. 125, *albofascia*, *lucida*, p. 126, N. America, DOANE, J. N. York ent. Soc. ix, n. spp.
- Trimicra lateralis*, Hawaii, GRIMSHAW, p. 9, Fauna Hawaiianensis iii, n. sp.

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- Acanthina inornata*, Mexico, WILLISTON, p. 249, pl. iv, fig. 17, Biol. Centr.-Amer. Dipt. n. sp.
- Beris violacea*, *micans*, *cuprea*, N. Zealand, HUTTON, p. 6, Tr. N. Zealand Inst. xxxiii, n. spp.
- Cyclogaster*; species tabulated, PLESKE, pp. 335-340, SB. Ges. Dorpat xii.
- C. caucasicus*, Caucasus, id. p. 336, t. c.; *C. peregrinus*, N. Zealand, HUTTON, p. 10, Tr. N. Zealand Inst. xxxiii : n. spp.
- Cynipimorpha minuta*, Mexico, WILLISTON, p. 252, pl. iv, fig. 19, Biol. Centr.-Amer. Dipt. i, n. sp.
- Euparhyphus elongatulus*, Mexico, WILLISTON, p. 249, pl. iv, fig. 14, t. c., n. sp.
- Exaireta alpina*, New Zealand, HUTTON, p. 5, Tr. N. Zealand Inst. xxxiii, n. sp.
- Lophoteles pallidipennis*, Mexico, WILLISTON, p. 250, pl. iv, fig. 16, Biol. Centr.-Amer. Dipt. i, n. sp.
- Myxosargus scutellatus*, Mexico, WILLISTON, p. 251, pl. iv, fig. 18, t. c., n. sp.
- Odontomyia collina*, Otago, *chathamensis*, Chatham Ids., HUTTON, p. 8, Tr. N. Zealand Inst. xxxiii, n. spp.
- Nemotelus zichyi*, Omak, KERTÉSZ, p. 190, Zichy Ergebn. ii, n. sp.
- Neopachygaster* n. g. for *Pachygaster meromelas* Duf., AUSTEN, p. 245, Ent. Mag. xxxvii.
- Pachygaster*; etymology, gender, JENKINSON, p. 299, Ent. Mag. xxxvii.
- Stratiomyia herzi*, p. 327, *portschinskii*, p. 328, Transcaucasus, *beckeri*, Switzerland, p. 331, PLESKE, SB. Dorpat. Ges. xii; *S. roborowskii*, p. 357, *koslowi*, p. 359, *sinensis*, p. 362, China, *ahngerii*, Transcaspiian, p. 364, *kasmakowi*, Altai, p. 365, *hispanica*, Barcelona, p. 366, *serica*, China, p. 369, PLESKE, t. c. : n. spp.
- Zabrachia* n. g. near *Pachygaster* for *Z. polita* n. sp., Adirondacks, COQUILLETT, p. 585, Bull. N. York Mus. 47.

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- Apatolestes lutulentus*, New Zealand, HUTTON, p. 18, Tr. N. Zealand Inst. xxxiii, n. sp.
- Apocampula subcanus* Walk. = (*nigra* Sch.), RICARDO, p. 286, Ann. Nat. Hist. viii.
- Atylotus ohioensis* n. n. for *Tab. pruinosis* Aldr., ALDRICH, p. 28, Canad. Ent. xxxiii.
- Chrysops neglectus*, Mexico, WILLISTON, p. 256, pl. iv, fig. 20, Biol. Centr.-Amer. Dipt. i; *C. brasiliensis*, Amazons, RICARDO, p. 314, Ann. Nat. Hist. viii : n. spp.
- Dichelacera pulchra*, Mexico, p. 263, p. iv, fig. 22, WILLISTON, Biol. Centr.-Amer. Dipt. i, n. sp.
- Pangonine*; notes on numerous species, with synonymical and critical remarks, and tables of specific characters, RICARDO, Ann. Nat. Hist. viii, pp. 287 etc.
- Pangonia magretti*, p. 7, *beckeri* (= *tricolor* Aust.), p. 10, *Erythræa*, BEZZI, Bull. Soc. ent. Ital. xxxiii; *P. pavida*, p. 253, *illota*, p. 254, Mexico, WILLISTON, Biol. Centr.-Amer. Dipt. i; *P. ricardoi*, p. 16, *montana*, p. 17, New Zealand, HUTTON, Tr. N. Zealand Inst. xxxiii : n. spp.
- Silvius irritans*, Afghanistan, RICARDO, p. 292, Ann. Nat. Hist. viii, n. sp.
- Tabanus dorsivitta*, seroot-fly, characters etc., FLOWER, P. Zool. Soc. London 1900, p. 971.
- T. pumiloides*, pl. iv, fig. 21, *furunculus*, p. 260, *fur*, *hæmagogus*, *filioles*, p. 261, Mexico, WILLISTON, Biol. Centr.-Amer. Dipt. i; *T. gravis*, Auckland, HUTTON, p. 13, Tr. N. Zealand Inst. xxxiii : n. spp.
- Theriopectes tarandinus* ♂, KERTÉSZ, p. 191, cut, Zichy Ergebn. ii; *T. punctifrons*, *confinis*, females, BECKER, p. 6, No. 9, Acta Soc. Sci. Fenn. xxvi.
- T. æquetinctus*, Siberia, id. p. 8, t. c., n. sp.

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- Atherix concinna*, Mexico, WILLISTON, p. 266, pl. iv, fig. 23, Biol. Centr.-Amer. Dipt. i, n. sp.
- Cænophanes insignis* and *appendiculatus* are one, KERTÉSZ, p. 407, Termes. Fuzetek xxiv.
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- Ptiolina fulva*, Siberia, BECKER, p. 9, t. c., n. sp.

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- Aphestia mexicana*, Amula, WILLISTON, p. 316, pl. vi, fig. 1, Biol. Centr.-Amer. Dipt. i, n. sp.
- Asilus tenebrosus*, p. 328, *A. (Heligmoneura) xanthocerus*, *melanocerus*, *dolichomerus*, *A. (Neoitamus) nigrocaudatus*, p. 329, *capillatus*, *A. (Machimus) ? anonymus*, *A. (Tolmerus) alterus*, p. 330, *A. lestes*, p. 331, Mexico, WILLISTON, t. c.; *A. smithii*, N. Zealand, HUTTON, p. 21, Tr. N. Zealand Inst. xxxiii : n. spp.

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- Atonia brevistylata*, Mexico, pl. vi, fig. 1, p. 316, WILLISTON, t. c., n. sp.
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- Damalis occidentalis*, Mexico, WILLISTON, p. 309, pl. v, fig. 21, t. c., n. sp.
- Dicranus jaliscoensis*, Mexico, WILLISTON, pl. v, fig. 15, p. 302, t. c., n. sp.
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- Senoprosopis meridionalis*, N. Zealand, HUTTON, p. 23, Tr. N. Zealand Inst. xxxiii, n. sp.
- Stenopogon csikii*, Siberia, STROBL, p. 193, Zichy Ergebn. ii, n. sp.
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- Anisotamia fasciata*, Mexico, WILLISTON, p. 284, pl. v, fig. 6, t. c., n. sp.

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- Anthrax 5-fasciatus* and *blandus* distinguished, KERTÉSZ, p. 194, Zichy Ergebn. ii; *A. flava*, victims, VILLENEUVE, p. 279, Bull. Soc. ent. France 1901.
- A. sackeniana*, p. 276, *pluricella*, p. 277, pl. v, fig. 3, *hirsuta*, p. 279, *diana*, p. 280, *orbitalis*, p. 281, pl. v, fig. 4, *nigrofimbriata*, *pleuralis*, fig. 5, p. 282, *ceria*, *maria*, p. 283, Mexico, WILLISTON, Biol. Centr.-Amer. Dipt. i, n. spp.
- Bombylius erythrocerus*, Erythræa, BEZZI, p. 12, Bull. Soc. ent. Ital. xxxiii; *B. io*, pl. v, fig. 7, *clio*, p. 285, *dolorosus*, fig. 8, p. 286, Mexico, WILLISTON, Biol. Centr.-Amer. Dipt. i, n. spp.

- Dischistus croaticus*, Novi, KERTÉSZ, p. 406, Termes. Fuzetek xxiv, n. sp.
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- Hybos triplex* var. n. *tabascensis*, *smithi*, *yucatanus*, *bakeri*, WHEELER & MELANDER, p. 372, Biol. Centr.-Amer. Dipt. i.
- H. typicus*, *mellipes*, p. 373, *spinicosta*, p. 374, Mexico, WHEELER & MELANDER, t. c., n. spp.
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- Phoneutisca simplicior*, Mexico, WHEELER & MELANDER, p. 375, t. c., n. sp.
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- Sciodromia mexicana*, Mexico, WHEELER & MELANDER, p. 376, Biol. Centr.-Amer. Dipt. i, n. sp.
- Syneches quadrangularis*, Mexico, WHEELER & MELANDER, p. 374, t. c., n. sp.
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- Campicnemus dasycnemus* = (*perforatus* Radd.), LICHTWARDT, p. 272, Zeitschr. Hym. Dipt. i.
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- C. teapanus*, Mexico, ALDRICH, p. 347, Biol. Centr.-Amer. Dipt. i; *C. spiniger*, p. 15, *hawaiiensis*, *saxatilis*, p. 16, Hawaiian Ids., GRIMSHAW, Fauna Hawaiiensis iii : n. spp.
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- Pipunculus thomsoni, pratorum*, nomenclature, BECKER, p. 132, Wien. ent. Zeit. xx; *P. pratorum v. thomsoni*, KERTÉSZ, p. 183, Wien. ent. Zeit. xx.
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- Melangyna* n. g. for *Melanostoma quadrimaculata*, VERRALL, p. 313, British flies viii.
- Melanostoma apertum*, p. 42, *decessum*, p. 43, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiii, n. spp.
- Microdon* larvæ in nests of *Pseudomyrma* in Mexico, WHEELER, p. 222, Psyche ix.
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- Phania verecunda*, N. Zealand, HUTTON, p. 61, Tr. N. Zealand Inst. xxxiii, n. sp.
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- Pseudolomacantha* n. g., p. 198, for *P. pectinata* n. sp., Austria, p. 199, HENDEL, Verh. Ges. Wien li.
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- Loxoneura rugulosa*, Sikkim, KERTÉSZ, p. 432, Termes. Fuzetek xxiv, n. sp.
- Microprosopa lucida*, Siberia, BECKER, p. 53, No. 9, Acta Soc. Sci. Fenn. xxvi, n. sp.
- Neuroctena fumida*, New Mexico, COQUILLETT, p. 616, P. U. S. Mus. xxiii, n. sp.
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- Paralimna picta*, New Guinea, KERTÉSZ, p. 423, Termes. Fuzetek xxiv, n. sp.
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- Phæogramma* n. g. *Trypetidæ*, p. 47, for *P. vittipennis* n. sp., Molokai, p. 48, GRIMSHAW, Fauna Hawaiiensis iii.
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- Plethocheta* n. g. near *Scatophaga*, p. 613, for *P. varicolor* n. sp., Pennsylvania, p. 614, COQUILLETT, P. U. S. Mus. xxiii.
- Pleurimystax* n. g. *Helomyzinae*, pp. 332 & 354, for *P. nigrilater* n. sp., Berlin, p. 355, PANDELLÉ, Etude iii.
- Pila frontalis*, New Hampshire, COQUILLETT, p. 617, P. U. S. Mus. xxiii, n. sp.
- Pilona*? *quadrifera* Walk. as *Helomyza*, redescribed, KERTÉSZ, p. 429, Termes. Fuzetek xxiv.
- P.*? *variabilis*, p. 426, *bischofi*, p. 427, *lateralis*, New Guinea, KERTÉSZ, t. c., n. spp.
- Pycnoglossa* n. g. near *Scatophaga*, for *P. flavipennis* n. sp., Washington, p. 613, COQUILLETT, P. U. S. Mus. xxiii.
- Pyrgometopa* n. g. *Drosophilidae*, p. 419, for *P. penicillata* n. sp., Peru, p. 420, KERTÉSZ, Termes. Fuzetek xxiv.
- Rhinoessa costalis*, Galapagos, COQUILLETT, p. 378, P. Washington Ac. iii, n. sp.
- Rhinotora peruana*, Peru, KERTÉSZ, Termes. Fuzetek xxiv, n. sp.
- Scatella hawaiiensis*, Oahu, GRIMSHAW, p. 49, Fauna Hawaiiensis iii, n. sp.
- Scatophaga incola*, p. 54, *obscurinervis*, p. 55, Siberia, BECKER, No. 9, Acta Soc. Sci. Fenn. xxvi; *S. nubifera*, Alaska, *crinita*, Bering Is., COQUILLETT, p. 612, P. U. S. Mus. xxiii : n. spp.
- Sciomyza*; synonymy, Meigen's types, HENDEL, pp. 198, 199, Wien. ent. Zeit. xx.
- S. griseicollis*, Siberia, BECKER, p. 58, No. 9, Acta Soc. Sci. Fenn. xxvi; *S. guttata*, Texas, p. 615, *albovaria*, New York, p. 616, COQUILLETT, P. U. S. Mus. xxiii : n. spp.
- Sepedon fusripennis*, metamorphosis, NEEDHAM, p. 577, pl. xiv, Bull. N. York Mus. 47.
- Siphonella brevinervis*, Austria, STROBL, p. 232, Jahrb. Mus. Karnten xxvi, n. sp.
- Tephritis limpidapex*, *cratericola*, Maui, GRIMSHAW, p. 46, Fauna Hawaiiensis iii, n. sp.
- Tetanocera punctifrons*, ♂, HENDEL, p. 140, Termes. Fuzetek xxiv; *T. pictipes*, metamorphosis, NEEDHAM, p. 580, pl. xiv, Bull. N. York Mus. 47.
- T. kerteszi*, E. Siberia, HENDEL, p. 138, Termes. Fuzetek xxiv; *T. setosa*, N. America, COQUILLETT, p. 615, P. U. S. Mus. xxiii; *T. rara*, N. Zealand, HUTTON, p. 84, Tr. N. Zealand Inst. xxxiii : n. spp.
- Tetanerozerini*; table of genera, HENDEL, p. 140, Termes. Fuzetek xxiv.
- Trigonometopus bipunctatus*, Chatham Ids., HUTTON, p. 86, Tr. N. Zealand Inst. xxxiii, n. sp.
- Zacompsia* n. g. *Ortaliidae* near *Eueresta*, for *Z. fulva* n. sp., Texas, COQUILLETT, p. 15, Ent. News Philad. xii.
- Zaprionus* n. g. *Drosophilidae*, p. 31, for *Z. rittiger* n. sp., Africa, p. 32, COQUILLETT, P. U. S. Mus. xxiv.

PUPIPARA.

- Cyclopodia hopei*, *macrura*, characters, ENDERLEIN, pp. 175–178, cuts, Arch. Naturg. lxvii.
- Ornithomyia avicularia*, puparium, CARPENTER, pp. 221–225, cuts, Irish Natural. x.
- Pseudolfersia diomedea*, Galapagos, COQUILLETT, p. 379, P. Washington Ac. iii, n. sp.

APHANIPTERA (SIPHONAPTERA).

[Cf. ENDERLEIN (415), FROGGATT (502), GALLI-VALERIO (526), HILGER (625), N. C. ROTHSCHILD (1185, 1186), WAGNER (1425).]

Australian fleas. Species of the world, FROGGATT (502).

Aphaniptera of Baden; species attacking man, HILGER, Mt. Badisch. zool. Ver. i.

Ceratophyllus newsteadi, Britain, ROTHSCHILD, p. 284, pl. vii, Ent. Rec. xiii; *C. armatus*, p. 17, *subarmatus*, p. 18, *tolli*, p. 19, Siberia, WAGNER, Horæ Soc. ent. Ross. xxxv : n. spp.

Hystriophylla narbeli, Switzerland, on *Arvicola nivalis*, GALLI-VALERIO, Arch. parasit. iii, p. 96, n. sp.

Pulex canis and *felis*, distinguished, ROTHSCHILD, p. 126, Ent. Rec. xiii.

P. longicornis, St. Paul Is., p. 553, pl. xxxiv, figg. 8, 9, 12, *æquisetosus*, E. Africa, p. 554, cuts, ENDERLEIN, Zool. Jahrb. Syst. xiv; *P. bohlsi*, Paraguay, WAGNER, p. 21, Horæ Soc. ent. Ross. xxxv : n. spp.

Sarcophylla in Madagascar, BEAUPREZ, Arch. parasit. iii, p. 320; *S. penetrans, gallinacea*, characters, localities, ENDERLEIN, pp. 551-553, Zool. Jahrb. Syst. xiv.

S. cæcata, Brazil, id., p. 549, pl. xxxiv, figg. 1, 3, 5, t. c., n. sp.

Typhlopsylla bisectodentata, characters, WAGNER, p. 24, Horæ Soc. ent. Ross. xxxv; *T. assimilis*, characters, host, GALLI-VALERIO, p. 100, Arch. parasit. iii.

T. intermedia, Paraguay, p. 24, *sibirica*, p. 26, *altaica*, p. 27, Siberia, WAGNER, Horæ Soc. ent. Ross. xxxv, n. spp.

(E.) *RHYNCHOTA* OR *HEMIPTERA*.

Nomenclature: KIRKALDY continues his notes, *Entomologist* xxxiv, pp. 176, etc.

Catalogue of Hemiptera of S. W. France, LAMBERTIE (805).

Morphology of *labium*, LEON (832).

Oogenesis, egg-coverings, GROSS (583).

HEMIPTERA-HETEROPTERA.

[The following memoirs relate to *Hemiptera-Heteroptera*, viz.:—BREDDIN (159–167), CAUDELL (220), CHAMPION (566), COUTIERE & MARTIN (301–303), DISTANT (345–347, 349, 352–359), VAN DUZEE (380), FABRE (425), FROGGATT (500, 507), GREEN (578), GROSS (583), HANDLIRSCH (602), HEIDEMANN (608), HORVÁTH (641, 642), JAKOWLEFF (677, 681, 685), KIRBY (744), KIRKALDY (747–752, 754–757), KONINGSBERGER & ZIMMERMANN (780), KUHLGATZ (794), LAMBERTIE (805), LEON (832), MONTANDON (928), MONTGOMERY (929), OSBORN (988), REUTER (1157, 1159, 1160), UHLER (1405).]

Notes on some Australian *Heteroptera* with coloured plate, FROGGATT (507).

Fossil *Hem.-Heter.*, BREDDIN (161).

PENTATOMIDÆ.

Eggs; maternal care, FABRE (425).

Seven of Walker's species of *Pentatomidæ* referred to other genera, DISTANT, p. 22, *Ann. Nat. Hist.* vii.

Agæus pavimentatus, W. Africa, DISTANT, p. 30, *Ann. Soc. ent. Belgique* xlv, n. sp.

Agatharchus escalerae, Asia Minor, HORVÁTH, p. 472, *Termes. Fuzetek* xxiv, n. sp.

Arocera fasciiventris, *capitata*, S. America, BREDDIN, p. 138, *Soc. Ent.* xvi, n. spp.

Aspongopus spissus, Congo, DISTANT, p. 31, *Ann. Soc. ent. Belgique* xlv, n. sp.

Asyla feæ, Burma, DISTANT, p. 107, *Tr. ent. Soc. London* 1901, n. sp.

Axiagastus mitescens, Hainan Is., DISTANT, p. 586, t. c., n. sp.

Bagrada pæcila var. n. *funerea*, HORVÁTH, p. 473, *Termes. Fuzetek* xxiv.

Bonaciatus n. g. *Dymantaria*, p. 346, for *B. dixonii* n. sp., Bombay, p. 347, DISTANT, *Entomologist* xxxiv.

Bozius n. g. near *Tropidotylus*, p. 238, for *B. exsiccus*, *respersus* n. spp., Nilgeri hills, p. 239, DISTANT, *Ann. Nat. Hist.* viii.

Brachycoris thoracicus, Borneo, DISTANT, p. 586, *Tr. ent. Soc. London* 1901, n. sp.

Brachyplatys funebris, Assam, DISTANT, p. 235, *Ann. Nat. Hist.* viii, n. sp.

- Byrsodepsus nigrinus*, Burma, DISTANT, p. 112, Tr. ent. Soc. London 1901, n. sp.
- Cantharodes rutherfordi* (= *nubilosus* Mont.), DISTANT, p. 239, Ann. Nat. Hist. viii.
- Carbula scapularis*, p. 29, *cuneata*, p. 30, Congo, DISTANT, Ann. Soc. ent. Belgique xlv; *C. producta*, Burma, DISTANT, p. 110, Tr. ent. Soc. London 1901 : n. spp.
- Catacanthus mirabilis*, India, DISTANT, p. 585, pl. xvi, fig. 3, t. c., n. sp.
- Caura intermedia*, Congo, DISTANT, p. 29, Ann. Soc. ent. Belgique xlv, n. sp.
- Cellobius gentilis*, Mongolia, JAKOWLEFF, p. 34, Rev. Russe Ent. i, n. sp.
- Chiastosternum unicolor* var. *lineatus*, DISTANT, p. 29, Ann. Soc. ent. Belgique xlv.
- Chrysocoris indigoferus*, Hainan Is., DISTANT, p. 582, Tr. ent. Soc. London 1901, n. sp.
- Codronchus* n. g. *Plataspinae*, for *C. andamanensis* n. sp., Andaman Ids., DISTANT, p. 233, Ann. Nat. Hist. viii.
- Coptosoma*: numerous synonyms, DISTANT, pp. 239, 240, t. c. The species allied to *C. cinctum* discussed at length with synonymy, KUHLGATZ, pp. 205-264, pls. viii, ix, Arch. Naturg. lxvii, Beiheft.
- C. prisca*, p. 236, *pernobilis*, Assam, *saniosa*, Tenasserim, p. 237, *margherite*, Assam, *nilgirensis*, India, p. 238, DISTANT, Ann. Nat. Hist. viii; *C. carinatum*, India, p. 245, *canuvaliz*, New Pomerania, p. 246, KUHLGATZ, Arch. Naturg. lxvii, Beiheft; *C. regnum*, Borneo, p. 581, pl. xvi, fig. 4, DISTANT, Tr. ent. Soc. London 1901 : n. spp.
- Crollius* n. g. for *Podops conspersus* Walk., DISTANT, p. 21, Ann. Nat. Hist. vii.
- Cydnoptellus incisus*, *minutus*, Burma, DISTANT, p. 105, Tr. ent. Soc. London 1901, n. spp.
- Dalsira scabrata*, Burma, DISTANT, p. 113, t. c., n. sp.
- Edessa satrapa*, *bilunulata*, Bolivia, BREDDIN, p. 124, Soc. ent. xvi, n. spp.
- Eobanus* n. g. near *Bolbocoris*, p. 240, for *E. typicus* n. sp., Burma, p. 241, DISTANT, Ann. Nat. Hist. viii.
- Eurydema fieberi* var. n. *caligatum*, HORVÁTH, p. 472, Termes. Fuzetek xxiv.
- Eusthenes rubefactus*, Burma, DISTANT, p. 111, Tr. ent. Soc. London 1901, n. sp.
- Eysarcoris rosaceus*, Burma, DISTANT, p. 109, t. c., n. sp.
- Fromundus* n. g. *Cydninae*, p. 582, for *F. opacus* n. sp., Ceylon, p. 583, DISTANT, t. c.
- Galgacus*; characters and position, DISTANT, p. 62, Ann. Nat. Hist. viii.
- Gonopsis lunata*, Burma, DISTANT, p. 113, Tr. ent. Soc. London 1901, n. sp.
- Graphosoma lineatum* var. n. *reductum*, HORVÁTH, p. 470, Termes. Fuzetek xxiv.
- Gulielmus* n. g. *Dymantaria*, for *G. laterarius*, *marmoratus*, n. spp., Bombay, DISTANT, p. 347, Entomologist xxxiv.
- Heurnius* n. g. *Cydninae*, p. 105, for *H. typicus*, *erebus* n. spp., Burma, DISTANT, p. 106, Tr. ent. Soc. London 1901.
- Hyparete vitiensis*, Fiji Ids., DISTANT, p. 585, t. c., n. sp.
- Hyperoncus uniformis*, Ceylon, DISTANT, p. 60, Ann. Nat. Hist. viii, n. sp.
- Laprius antennatus*, Burma, DISTANT, p. 108, Tr. ent. Soc. London 1901, n. sp.
- Mecosoma thoracata*, Mashonaland, DISTANT, p. 61, Ann. Nat. Hist. viii, n. sp.
- Menthisa smaragdina*, taxonomy, DISTANT, p. 21, op. cit. vii.
- Murgantia stenozgoides*, Guatemala, BREDDIN, p. 138, Soc. ent. xvi, n. sp.
- Nezara nigradorsata*, *longicorialis*, *fuscopunctata*, S. America, BREDDIN, p. 123, t. c., n. spp.
- Odius obscurus*, Burma, DISTANT, p. 108, Tr. ent. Soc. London 1901, n. sp.

- Oplomus chrysomela*, Ecuador, BREDDIN, Soc. ent. xvi, p. 53, n. sp.
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Plexippus vittatus, Burma, DISTANT, p. 109, Tr. ent. Soc. London 1901, n. sp.
Podops ceylonica, Ceylon, *ochracea*, Tenasserim, p. 241, *dentata*, Bengal, p. 242, DISTANT, Ann. Nat. Hist. viii.
Paeclacorix crowleyi, Assam, DISTANT, p. 61, t. c., n. sp.
Ponsila montana, Assam, DISTANT, p. 234, t. c., n. sp.
Prætextatus n. g. *Pentatominae*, near *Aednus*, p. 583, for *P. typicus* n. sp., Burma, p. 584, DISTANT, Tr. ent. Soc. London 1901.
Pygoplatys shelfordi, Borneo, DISTANT, p. 587, t. c., n. sp.
Schirus delagrangi, *bicolor*, distinguished, HORVÁTH, p. 471, Termes. Fuzetek xxiv.
S. orientalis, Burma, DISTANT, p. 583, Tr. ent. Soc. London 1901, n. sp.
Sennertus n. g. *Pentatominae*, p. 110, for *S. typicus* n. sp., Burma, p. 111, DISTANT, t. c.
Surenus n. g. *Pentatominae*, p. 106, for *S. normalis* n. sp., Burma, p. 107, DISTANT, t. c.
Tarisa; monograph REUTER, Ofv. Finska Forh. xliii, pp. 25–48, pls. i, ii.
T. ciliaris, Transcaspien, JAKOWLEFF, p. 33, Rev. Russe Ent. i; *T. spinifer*, Arabia, p. 33, *elevata*, S. Russia, p. 36, *camelus*, Algeria, p. 37, *adusta*, Arabia, p. 45, REUTER, t. c. : n. spp.
Tiarocoris consertus, Burma, p. 235, *signatus*, Ceylon, p. 236, DISTANT, Ann. Nat. Hist. viii, n. spp.
Urostylis farinata, Burma, DISTANT, p. 114, Tr. ent. Soc. London 1901, n. sp.
Valescus n. g. *Pentatominae* near *Aednus*, p. 584, for *V. nigricans* n. sp., Ceylon, p. 585, DISTANT, t. c.
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COREIDÆ.

- Revision of Walker's *Coreidæ*, synonymy (not recorded below) summarised on pp. 19, 20, DISTANT, Ann. Nat. Hist. vii, pp. 6–22.
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 Taxonomy and synonymy of Westwood's species in the Oxford collection; the taxonomy is only partially given below, DISTANT, pp. 325–335, pls. xxix, xxx, P. Z. S. 1901, i.
Acanthocephala æqualis Westw. as *Metapodius*, pl. xxix, fig. 1, *consobrina*, fig. 7, DISTANT, p. 329, t. c.
Acynthocoris affinis Westw. as *Crinocerus*, pl. xxix, fig. 6, p. 330, t. c.
A. esau, Borneo, DISTANT, p. 421, Ann. Nat. Hist. vii, n. sp.
Alydus zichyi, China, HORVÁTH, p. 258, Zichy Ergebn. ii, n. sp.
Amorbus angustior Westw. as *Physomerus*, pl. xxix, fig. 2, *subseriatus*, fig. 5, DISTANT, p. 328, P. Z. S. 1901, i.
Anoplocnemis phasianus, habits, GREEN, p. 115, Entomologist xxxiv.
Calamocoris n. g. *Micrellytraria*, for *C. nigrolimbatus*, *erubescens* n. spp., Ecuador, BREDDIN, p. 52, Soc. ent. xvi.
Cebrenis haenschii, Ecuador, BREDDIN, p. 26, t. c., n. sp.
Cletomorpha raja, India, DISTANT, p. 423, Ann. Nat. Hist. vii, n. sp.
Cloresmus modestus, *hasianus*, India, DISTANT, p. 14, t. c., n. spp.

- Colpura funebris*, Sikkim, *javanensis*, p. 16, *modesta*, Java, *labecula*, Perak, p. 17, *erubus*, India, *noctua*, Java, p. 18, DISTANT, t. c., n. spp.
- Corizus robustus* Westw., pl. xxx, fig. 2, *vincentii*, fig. 3, figures, DISTANT, P. Z. S. 1901, i.
- Curupira bicolor*, p. 426, *distincta*, p. 427, Malay Arch., DISTANT, Ann. Nat. Hist. vii, n. spp.
- Dallasiellus* n. n. for *Stenocoris* Sign. nec Burm., BERG, p. 281, Comun. Mus. Buenos Aires i.
- Empedocles tenuicornis* Westw. as *Metapodius*, pl. xxx, fig. 1, DISTANT, p. 329, P. Z. S. 1901, i.
- Homæocerus borneensis*, p. 9, *malayensis*, Perak, *atkinsoni*, Assam, p. 10, *abdominalis*, Perak, *montanus*, Nilgiri hills, *smecticus*, Burma, p. 11, *yerburyi*, Aden, *trimaculatus*, E. Africa, p. 12, DISTANT, Ann. Nat. Hist. vii, n. spp.
- Hypsilonotus loratus*, *tricolor*, *andinus*, S. America, BREDDIN, p. 25, Soc. ent. xvi, n. spp.
- Laminiceps festinus*, *sumptuosus*, Amazons, DISTANT, Ann. Nat. Hist. vii, p. 7; *L. proximus*, *viduus*, *haenschi*, Ecuador, BREDDIN, p. 42, Soc. ent. xvi : n. spp.
- Leptocoris spectabilis*, Celebes, BREDDIN, p. 114, Allg. Zeitschr. Ent. vi, n. sp.
- Leptocoris acuta*, life-history and ravages, ZEHNTNER (1507).
- Leptoglossus fulvicornis* Westw. as *Anisoscelis*, DISTANT, pl. xxx, fig. 4, p. 330, P. Z. S. 1901, i.
- Leptopetalops* n. g. near *Petalops* for *L. gracilis* n. sp., Ecuador, BREDDIN, p. 52, Soc. ent. xvi.
- Leptoscelis militaris*, Ecuador, DISTANT, p. 418, Ann. Nat. Hist. vii; *L. limbativentris*, *sæpifera*, Ecuador, BREDDIN, p. 25, Soc. ent. xvi : n. spp.
- Megalotomus parvus* Westw. as *Alydus*, pl. xxx, fig. 5, p. 331, DISTANT, P. Z. S. 1901, i.
- M. jamaicensis*, Jamaica, DISTANT, p. 427, Ann. Nat. Hist. vii, n. sp.
- Melania* n. g. for *Myctis gracilis* Westw., figured, pl. xxix, fig. 4, DISTANT, p. 326, P. Z. S. 1901, i.
- Myrmus glabellus*, Siberia, HORVÁTH, p. 258, Zichy Ergebn. ii, n. sp.
- Notobitus abdominalis*, India, DISTANT, p. 13, Ann. Nat. Hist. vii, n. sp.
- Pachycephalus touchet*, China, DISTANT, p. 19, t. c., n. sp.
- Paryphes smaragdus*, Ecuador, BREDDIN, p. 41, Soc. ent. xvi, n. sp.
- Pephricus fragilis*, p. 89, *fasciatus*, p. 90, cuts, Africa, DISTANT, Entomologist xxxiv, n. spp.
- Petalops distinctus* var. n. *modestus*, BREDDIN, p. 41, Soc. ent. xvi.
- P. distinguendus*, *virago*, Ecuador, BREDDIN, t. c., n. spp.
- Phthia affinis*, Ecuador, DISTANT, p. 419, Ann. Nat. Hist. vii; *P. femorata*, p. 41, *sponsa*, p. 52, Ecuador, BREDDIN, Soc. ent. xvi : n. spp.
- Riptortus masculus*, Celebes, BREDDIN, p. 114, Allg. Zeitschr. Ent. vi, n. sp.
- Sephina humeralis*, Ecuador, DISTANT, p. 420, Ann. Nat. Hist. vii, n. sp.
- Serinetha fraterna* Westw. as *Pyrrhotes*, pl. xxx, fig. 6, p. 332, DISTANT, P. Z. S. 1901, i.
- S. æthiops*, W. Africa, DISTANT, p. 429, Ann. Nat. Hist. vii, n. sp.
- Spartocera grandis*, Colombia, DISTANT, p. 420, t. c., n. sp.
- Stenocephalus bianchii*, *dimidiatus*, Persia, *adspernus*, Abyssinia, p. 203, *robustus*, Ordubad, p. 204, JAKOBLEV, Horæ Soc. ent. Ross. xxxv, n. spp.
- Stenoscelidea albovaria*, pl. xxx, fig. 7, DISTANT, P. Z. S. 1901, i.
- Sundarus inca*, Ecuador, BREDDIN, p. 41, Soc. ent. xvi, n. sp.
- Tupalus maculatus*, Sierra Leone, DISTANT, p. 428, Ann. Nat. Hist. vii, n. sp.

LYGÆIDÆ.

- Revision of Walker's *Lygæidæ*, with summary of synonymy, pp. 540, 541, DISTANT, pp. 531-541, Ann. Nat. Hist. vii and op. cit. viii, pp. 464-512.
- Aphanus ciki*, China, HORVÁTH, p. 264, Zichy Ergebn. ii; *A. rufo-cinctus*, Perim Island, p. 501, *australis*, *papuanus*, *oceanicus*, Australia, p. 502, *lineosus*, Ceylon, *erosus*, E. Africa, p. 503, DISTANT, Ann. Nat. Hist. viii: n. spp.
- Apollonius* n. g., p. 484, near *Neocattarus*, for *Ophthalmicus cincticollis* Walk., DISTANT, p. 484, Ann. Nat. Hist. viii.
- Aristenetus* n. g. for *Rhyparochromus diffinis* Walk., DISTANT, p. 508, t. c.
- Astacops walkeri* n. n. for *A. anticus* Walk., DISTANT, p. 532, op. cit. vii.
- A. elongatus*, *sarasinorum*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi; *A. rufipes*, New Guinea, *notaticeps*, Sumbawa, p. 81, *gracilis*, Halma-hera, p. 82, BREDDIN, Wien. ent. Zeit. xx; *A. thoracicus*, New Guinea, *abdominalis*, Louisiade Arch., *malayanus*, Ké Isld., DISTANT, p. 532, Ann. Nat. Hist. vii: n. spp.
- Bactrophyia* n. g. near *Bactrodosoma*, for *B. equatoriana*, *peruviana*, n. spp., S. America, BREDDIN, p. 53, Soc. ent. xvi.
- Bedunia notulata*, Mysol, p. 478, *segmentata*, Perak, p. 479, DISTANT, Ann. Nat. Hist. viii, n. spp.
- Cænocoris croceosignatus*, Cameroons, *dentifer*, Sula Besi, p. 1, *maximus*, *nigriceps*, Celebes, *griseus*, Key Islds., *schultheissi*, Sumatra, p. 2, BREDDIN, Soc. ent. xvi, n. spp.
- Daeliac affinis*, Tasmania, DISTANT, p. 483, Ann. Nat. Hist. viii, n. sp.
- Dieuches relatus*, Mashonaland, DISTANT, p. 505, t. c., n. sp.
- Dinia seosus*, Ceylon, p. 497, *trabeatus*, India, p. 498, DISTANT, t. c., n. spp.
- Dinomachus* n. g. near *Heterogaster*, for *D. marshalli* n. sp., Mashonaland, DISTANT, p. 473, t. c.
- Drymus bicolor*, Assam, DISTANT, p. 508, t. c., n. sp.
- Dycoderus* n. g. near *Ptochiomera*, p. 507, for *P. picturatus* n. sp., Arizona, p. 508, UHLEH, P. ent. Soc. Washington iv.
- Eucosmetus insignis*, Assam, DISTANT, p. 482, t. c., n. sp.
- Felicianus* n. g. for *Rhyparochromus luteicornis* Walk., DISTANT, p. 486, t. c.
- Geocoris mongolicus*, Urga, p. 261, *mandarinus*, China, p. 263, HORVÁTH, Zichy Ergebn. ii; *G. fenestellus*, Borneo, BREDDIN, p. 10, Soc. ent. xvi; *G. athiops*, W. Africa (= *Ophthalmicus ruficeps* Dall. nec Germ.), p. 469, *convivus*, *elongatus*, p. 470, Australia, *vestitus*, Christmas Isld., p. 471, DISTANT, Ann. Nat. Hist. viii: n. spp.
- Germalus pallidus*, N. W. Australia, DISTANT, p. 471, t. c., n. sp.
- Graptostethus grandis*, Nyasaland, p. 537, *pictus*, Natal, p. 537, DISTANT, op. cit. vii, n. spp.
- Heinsius* n. g. near *Ischnodemus*, for *H. explicatus* n. sp., N. W. Australia, DISTANT, p. 469, op. cit. viii.
- Henricodohrnia* n. g. *Cleradaria*, for *H. elegans* n. sp., Sumatra, BREDDIN, p. 11, Soc. ent. xvi.
- Ischnodemus australis*, Port Darwin, *noctulus*, Ceylon, DISTANT, p. 468, Ann. Nat. Hist. viii, n. spp.
- Lamprodema rufipes* var. n. *femoratum*, HORVÁTH, p. 264, Zichy Ergebn. ii.
- L. teneoides*, Ceylon, *vittata*, N. W. Australia, DISTANT, p. 500, Ann. Nat. Hist. viii, n. spp.
- Lethaeus signatus*, Ceylon, *assamensis*, Assam, *maculatus*, Christmas Isld., DISTANT, p. 507, t. c., n. spp.
- Lygæosoma neglecta*, Cape of Good Hope, DISTANT, p. 464, t. c., n. sp.
- Macropes sultanus*, Zanzibar, *dilutus*, *excursatus*, India, p. 467, *fasciatus*, Perak, p. 468, DISTANT, t. c., n. spp.

- Lygæus bettoni*, E. Africa, DISTANT, p. 536, op. cit. vii, n. sp.
Magninus n. g. near *Pachygrontha*, p. 474, for *M. typicus* n. sp., N. Australia, p. 475, DISTANT, op. cit. viii.
Malcus scutellata, Ceylon, DISTANT, p. 472, t. c., n. sp.
Mizulduis n. g. near *Bathycles*, p. 483, for *M. lewisi* n. sp., Ceylon, p. 484, DISTANT, t. c.
Narbo fasciatus, Borneo, DISTANT, p. 505, t. c., n. sp.
Navarrus n. g. for *Rhyparochromus phacophilus* Walk., DISTANT, p. 476, t. c.
Clerada noctua, Borneo, DISTANT, p. 476, t. c., n. sp.
Nicuesa affinis, Ecuador, DISTANT, p. 538, op. cit. vii, n. sp.
Ninus assamensis, p. 465, *discessus*, p. 466, Assam, DISTANT, op. cit. viii, n. spp.
Nysipus spectabilis, Christmas Island, DISTANT, p. 465, t. c., n. sp.
Oncopeltus purpurascens, Baudin Isl. Australia, DISTANT, p. 535, op. cit. vii, n. sp.
Pachygrontha walkeri, N. Australia, p. 473, *lewisi*, Ceylon, p. 474, DISTANT, op. cit. viii, n. spp.
Pamera scotti n. n. for *Diplototus luridus* Scott, DISTANT, p. 479, t. c.
P. sobrina, Calcutta, p. 480, *andrewsi*, *insignis*, Christmas Island, *thoracica*, Queensland, p. 481, *murrea*, N. W. Australia, p. 482, DISTANT, t. c.; *P. recincta*, *procincta*, Ecuador, BREDDIN, p. 59, Soc. ent. xvi : n. spp.
Patritius n. n. for *Papirius* Stål, DISTANT, p. 468, Ann. Nat. Hist. viii.
Petizius distinctus, Grenada, DISTANT, p. 501, t. c., n. sp.
Pæantius festivus, Ceylon, DISTANT, p. 506, t. c., n. sp.
Primierus n. g. near *Prosomæus*, p. 477, for *Plociomerus bispinus* Motsch., and *P. indicus* n. sp., Calcutta, p. 478, DISTANT, t. c.
Rhaptus uhleri, Grenada, DISTANT, p. 508, t. c., n. sp.
Rhodiginus n. g. for *Ophthalmicus dispar* Walk., DISTANT, p. 485, t. c.
Rhyparochromus convelatus, Bombay, DISTANT, p. 485, t. c., n. sp.
Scopiusates nigripes, *affinis*, *bicolor*, p. 533, *militaris*, p. 534, Australia, DISTANT, op. cit. vii, n. spp.
Sinierus n. g. near *Dinia*, for *Aphanus capensis* Dall., DISTANT, p. 498, op. cit. viii.
Speusippus n. g. near *Allocentrum* for *S. splendens* n. sp., Natal, DISTANT, p. 499, t. c.
Trapezus affinis, Grenada, DISTANT, p. 500, t. c., n. sp.
Tropidothorax concisus Walk., characters, DISTANT, p. 537, op. cit. vii.

PYRRHOCORIDÆ.

N.B. Owing to the confusion arising from the fact that the names Pyrrhocoridae and Lygaeidae are transposed by different authors, reference should be made to both families.

- Antiloclus immundulus*, Dammer Id., BREDDIN, p. 83, Wien. ent. Zeit. xx, n. sp.
Dindymus obesus, Sumatra, *famosus*, Duke York Id., DISTANT, p. 589, Tr. ent. Soc. London 1901; *D. daiacus*, Banguay Id., BREDDIN, p. 84, Wien. ent. Zeit. xx; *D. limbaticollis*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi : n. spp.
Dysdercus cingulatus and *pæcilus* distinguished, BREDDIN, p. 84, Wien. ent. Zeit. xx.
D. decorus, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi; *D. longiceps*, Torres Straits, *rubriscutellatus*, Halmahera, p. 11, *sordidulus*, Queensland, p. 12, BREDDIN, Soc. ent. xvi; *D. maurus*, Pernambuco, *caribbaeus*, Antilles, DISTANT, p. 590, Tr. ent. Soc. London 1901 : n. spp.

- Ectatops speculum*, Sumatra, *nervosus*, Borneo, BREDDIN, p. 11, Soc. ent. xvi, and pp. 140, 141, Ent. Zeit. Stettin lxii, n. spp.
Euscopus parviceps, Sumatra, BREDDIN, p. 26, Soc. ent. xvi, and p. 143, Ent. Zeit. Stettin lxii, n. sp.
Largus umbrosus, West Indies, p. 587, *geniculatus*, Colombia, p. 588, DISTANT, Tr. ent. Soc. London 1901, n. spp.
Physopelta villosa, Sumatra, BREDDIN, p. 11, Soc. ent. xvi, and p. 138 Ent. Zeit. Stettin lxii; *P. dubia*, N. Guinea, *elegantula*, Key Ids., BREDDIN, p. 82, Wien. ent. Zeit. xx : n. spp.
Pyrrhocoris, macropterous and brachypterous forms, ROYER, p. 153, AZAM, p. 192, ROYER, p. 230, Bull. Soc. ent. France 1901.
Saldoidea n. g. *Pyrrhocoridae* [? *Lygaeidae*], for *S. ornatulus* n. sp., Sumatra, BREDDIN, p. 26, Soc. ent. xvi.
Saldoidea n. g. near *Ectatops*, p. 141, for *S. ornatulus* n. sp., Sumatra, p. 142, BREDDIN, Ent. Zeit. Stettin lxii.
Scantius obscurus, Ceylon, DISTANT, p. 589, Tr. ent. Soc. London 1901, n. sp.
Stictaulax flammeolus, Port Moresby, DISTANT, p. 588, t. c., n. sp.

TINGITIDÆ.

- Corythucha globigera*, Ecuador, BREDDIN, p. 82, Soc. ent. xvi, n. sp.
Froggattia olivinia, fig. 14, plate, p. 1601, FROGGATT, Agric. Gaz. N. S. W. xii.
Serenthia brevisrostris, Amu-Daria, JAKOWLEFF, p. 35, Rev. Russe Ent. i, n. sp.

BERYTIDÆ, ARADIDÆ.

- Neides propinquus*, Siberia, HORVÁTH, p. 259, Zichy Ergebn. ii, n. sp.
Aradus niger, habits etc., HEIDEMANN, pp. 389, 390, P. ent. Soc. Washington iv.
A. brevisrostris, Siberia, HORVÁTH, p. 266, Zichy Ergebn. ii, n. sp.

HYDROMETRIDÆ.

- [Genus not stated], *ravana* [locality not stated], KIRKALDY, p. 309, Entomologist xxxiv, n. sp.
Gerris fletcheri, China, KIRKALDY, p. 51, t. c.; *G. anadyomene, sakuntala*, Ceylon, KIRKALDY, p. 117, t. c.; *G. (Limnometra) kirkaldyi*, Borneo, BREDDIN, p. 93, Rev. Ent. franc. xx : n. spp.
Hermatobates djiboutensis, Africa, COUTIÈRE & MARTIN, p. 172, Bull. Mus. Paris 1901, n. sp.
Hermatobatodes n. g. of subfam. n. *Hermatobatinæ*, for *H. djiboutensis* n. sp., E. Africa, COUTIÈRE & MARTIN, p. 1066, C.R. Ac. Sci. cxxxiii.
Hermatobatodes marchei n. sp., Philippines, COUTIÈRE & MARTIN, p. 214, Bull. Mus. Paris 1901, n. sp.
Perittopus Fieb. defined, KIRKALDY, p. 286, Entomologist xxxiv.
P. breddini, Java, id. l. c., n. sp.

REDUVIIDÆ, EMESIDÆ, NABIDÆ, HENICOCEPHALIDÆ.

- Some localities for *Nabidæ*, KIRKALDY, p. 225, Wien. ent. Zeit. xx.
Acrocoris perarmata, British Guiana, KIRBY, p. 72, pl. vi, fig. A, Tr. Linn. Soc. London viii, n. sp.

- Algol* n. g. *Ploiariinæ*, for *A. hesione* n. sp., Sumatra, KIRKALDY, p. 54, Notes Leyden Mus. xxiii.
- Alloeorhynchus erechtheus*, New Caledonia, *putoni*, Algeria, KIRKALDY, p. 220, Wien. ent. Zeit. xx, n. spp.
- Corcius æquatoria*, Ecuador, BREDDIN, p. 59, Soc. ent. xvi, n. sp.
- Ectrychotes rubrifemur*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi, n. sp.
- Erbessus rufiventris*, Surinam, BREDDIN, p. 83, Soc. ent. xvi, n. sp.
- Eulyes superba*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi, n. sp.
- Ghilianella galapagensis*, Galapagos, HEIDEMANN, p. 367, P. Washington Ac. iii, n. sp.
- Henicocephalus maclachlani*, New Zealand, KIRKALDY, p. 217, Ent. Mag. xxxvii, n. sp.
- Hippokleides* n. g. *Ploiariinæ*, for *H. horsti* n. sp., Sumatra, KIRKALDY, p. 55, Notes Leyden Mus. xxiii.
- Holotrichiopsis* n. g., p. 101, for *H. ursinus* n. sp., Gan-su, p. 102, JAKOWLEFF, Rev. Russe Ent. i.
- Ischnobena polymela*, Sumatra, KIRKALDY, p. 55, Notes Leyden Mus. xxiii, n. sp.
- Luteva isadas*, Sumatra, KIRKALDY, p. 56, t. c., n. sp.
- Mendis sæva*, *perelegans*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi, n. spp.
- Miranbulus* n. g. *Acanthaspini*, p. 74, for *M. niger* n. sp., Ecuador, p. 75, BREDDIN, Soc. ent. xvi.
- Nabis eva*, Abyssinia, KIRKALDY, p. 219, Wien. ent. Zeit. xx, n. sp.
- Oncocephalus biguttula*, Asia Minor, HORVÁTH, p. 476, Termes. Fuzetek xxiv, n. sp.
- Orthometrops* n. g. *Saicida*, p. 508, for *O. decorata* n. sp., Pennsylvania, p. 509, UHLER, P. ent. Soc. Washington iv.
- Phorticus elinor*, Singapore, KIRKALDY, p. 221, Wien. ent. Zeit. xx, n. sp.
- Pirates bicoloripes*, Celebes, BREDDIN, p. 115, Allg. Zeitschr. Ent. vi, n. sp.
- Pleius* n. g. near *Luteva*, for *P. ritsemæ* n. sp., Sumatra, KIRKALDY, p. 56, Notes Leyden Mus. xxiii.
- Ptilocnemus femoralis*, fig. 9, plate, p. 1601, FROGGATT, Agric. Gaz. N. S. W. xii.
- Reduviolus subcoleoptratus*, winged form, KIRKALDY, p. 222, *capsiformis*, synonymy, p. 223, Wien. ent. Zeit. xx.
- Reduviolus vanduzeei*, p. 223, *chevkeanus*, N. America, *erigone*, Sumatra, p. 224, KIRKALDY, t. c., n. spp.
- Rhamphocoris* n. g. *Nabidæ*, p. 221, for *R. dorothea* n. sp., Pulo Laut, p. 222, KIRKALDY, t. c.
- Sastrapadu hageni*, Sumatra, KIRKALDY, p. 53, Notes Leyden Mus. xxiii, n. sp.
- Sinea*, revised, CAUDELL, pp. 1-11, J. N. York Ent. Soc. ix, pls. 1, 2.
- S. confusa*, Arizona, id. p. 6, t. c., n. sp.
- Spiniger petax*, p. 75, *tenax*, *audax*, p. 83, Ecuador, BREDDIN, Soc. ent. xvi, n. spp.
- Teledella miniacea*, Celebes, BREDDIN, p. 114, Allg. Zeitschr. Ent. vi, n. sp.
- Volinus sycanoides*, Celebes, BREDDIN, p. 114, t. c., n. sp.
- Zirta limbata*, Bolivia, BREDDIN, p. 60, Soc. ent. xvi, n. sp.

SALDIDÆ.

- Salda subcoriacea*, Asia Minor, HORVÁTH, p. 479, Termes. Fuzetek xxiv ;
S. rubromaculata, Galapagos, HEIDEMANN, p. 368, P. Washington Ac. iii : n. spp.
- Saldoida* n. g. for *S. slosoni*, p. 181, *cornuta*, p. 182, n. spp., Florida, OSBORN, Canad. Ent. xxxiii.

CAPSIDÆ incl. MIRIDÆ.

- Allodapus pumilus*, Siberia, HORVÁTH, p. 268, Zichy Ergebn. ii, n. sp.
Aspidacanthus n. g., p. 169, for *A. myrmecoides* n. sp., Turcomania, p. 170, REUTER, Ofv. Finska Forh. xliii.
Atomophora vitticollis, p. 177, *lineata*, p. 178, *bipunctata*, p. 179, Turcomania, REUTER, t. c., n. spp.
Atractotomus validus, REUTER, p. 201, t. c., n. sp.
Austrocapsus n. g. *Miridæ*, for *A. martigena* n. sp., W. Australia, KIRKALDY, p. 116, Entomologist xxxiv.
Brachycoleus bolivari, Asia Minor, HORVÁTH, p. 478, Termes. Fuzetek xxiv, n. sp.
Calocoris nigronaustus, Algeria, REUTER, p. 211, Ofv. Finska Forh. xliii, n. sp.
Chrysocnoodes n. g., p. 196, for *C. vestitus* n. sp., Algeria, p. 197, REUTER, t. c.
Conometopus prasinus Fieb., to *Pantilius*, description, REUTER, pp. 161, 162, t. c.
Deraeocoris ater var. n. *limbicollis*, REUTER, p. 167, t. c.
Dicyphus melanocerus, Turkestan, REUTER, p. 175, t. c., n. sp.
Dimorphocoris lateralis, Crete, REUTER, p. 203, t. c., n. sp.
Disphinctus formosus, eggs, GREEN, p. 115, cuts, Entomologist xxxiv.
Excentricus pictipes, a distinct species, REUTER, p. 187, Ofv. Finska Forh. xliii.
Globiceps dubius, Turkestan, REUTER, p. 176, t. c., n. sp.
Halticidea n. g. near *Halticus*, p. 172, for *H. punctulata* n. sp., Ural, p. 173, REUTER, t. c.
Helopeltis autonii, eggs, metamorphosis, ZEHNTNER (1512), natural history, ZEHNTNER (1511).
Ibarius n. g., p. 269, for *I. discretus* n. sp., Omsk, p. 270, HORVÁTH & REUTER, Zichy Ergebn. ii.
Labops nigripes, Dauria, REUTER, p. 172, Ofv. Finska Forh. xliii, n. sp.
Lamocoris ahngeri, Turcomania, REUTER, p. 168, t. c., n. sp.
Lygus divergens, Syria, REUTER, p. 210, t. c., n. sp.
Maurodactylus alutaceus var. *discifer*, REUTER, p. 196, t. c.
Miris ferrugatus var. n. *longicornis*, REUTER, p. 161, t. c.
Myrmecophyes tibialis, Turkestan, REUTER, p. 174, t. c., n. sp.
Neocoris anescens, Mongolia, REUTER, p. 188, t. c., n. sp.
Oncotylus basicornis, Asia Minor, HORVÁTH, p. 479, Termes. Fuzetek xxiv ; *O. horvathi*, Armenia, p. 183, *pilosicornis*, E. Siberia, p. 184, REUTER, Ofv. Finska Forh. xliii : n. spp.
Opisthotenia n. g., p. 180, near *Hoplomachus*, for *O. fulvipes* n. sp., Caucasus, p. 182, REUTER, t. c.
Orthotylus albovittatus, Algeria, REUTER, p. 203, t. c., n. sp.
Phytocoris pilosus, p. 162, *cretaceus*, p. 164, *sahlbergi*, p. 165, Centr. Asia, REUTER, t. c., n. spp.
Plagiognathus albipennis var. n. *extrema*, REUTER, p. 188, t. c.
Plagiorrhama concolor, sexes, REUTER, p. 167, t. c.
Plagiotylus sahlbergi, Algeria, REUTER, p. 208, t. c., n. sp.
Polymerus pekinensis, China, HORVÁTH, p. 267, Zichy Ergebn. ii, n. sp.
Psallopsis n. g., p. 193, for *P. femoralis* n. sp., Algeria, p. 199, REUTER, Ofv. Finska Forh. xliii.
Psallus criocoroides var. n. *sahlbergi*, Tunis, REUTER, p. 201, t. c.
Psallus pici referred to *Atractotomus*, REUTER, p. 202, t. c.
P. cunealis, p. 185, *P. albicans*, p. 186, Turkestan, REUTER, t. c. ; *P. saundersi*, Algeria, REUTER, p. 200, t. c. : n. spp.

- Smicromerus* n. g., p. 206, near *Orthocephalus*, for *S. saltans* n. sp., Algeria, p. 208, REUTER, t. c.
Trigonotylus ruficornis var. n. *viridicornis*, REUTER, p. 213, t. c.
Tuponia sahlbergi, p. 189, *tibialis*, p. 190, *suturalis*, p. 191, *conspersa*, p. 193, Turkestan, *obscuriceps*, Algeria, p. 195, REUTER, t. c., n. spp.

HYDROCORISÆ.

Structure of labium, LEON (832).

- Abedus ovatus*, pl. xxi fig. 19, *breviceps*, fig. 20, *signoreti*, fig. 21, p. 363, CHAMPION, Biol. Centr.-Amer. Rhynch. ii.
Ambrysus oblongulus, pl. xxi fig. 3, *pulchellus*, fig. 4, *pudicus*, fig. 5, *parviceps*, fig. 6, *melanopterus*, fig. 7, *mexicanus*, fig. 8, *hybridus*, fig. 9, *guttatipennis*, fig. 10, *signoreti*, fig. 11, CHAMPION, pp. 355–358, t. c.
Amorgius indicus, eggs, habits, parasites, GREEN, pp. 113, 114, Entomologist xxxiv.
A. camponi Guayaquil, MONTANDON, p. 561, Bull. Soc. Bucarest. ix, n. sp.
Anisops fieberi (= *niveus* Fieb. nec Fabr.), *A. breddini*, Celebes, KIRKALDY, p. 5, Entomologist xxxiv; *A. carinatus*, p. 372, pl. xxii fig. 12, *albidus*, p. 37, fig. 14, p. 373, *crassipes*, fig. 15, *pallens*, fig. 16, p. 374, Centr. America, CHAMPION, Biol. Centr.-Amer. Rhynch. ii : n. spp.
Belostoma colosanicum, pl. xxii fig. 4, *annulipes*, fig. 3, *angustipes*, fig. 5, p. 368, characters, CHAMPION, t. c.
Corixa, stridulatory organ, KIRKALDY, Entomologist xxxiv, p. 9, and J. Quekett Club (2) viii, pp. 33–46, pls. iii, iv.
C. guatemalensis, p. 377, pl. xxii fig. 19, *maria*, fig. 20, *parvula*, fig. 21, p. 378, *sexlineata*, fig. 22, p. 379, *edulis*, fig. 24, p. 380, *unguiculata*, fig. 26, p. 382, Centr. Amer., CHAMPION, Biol. Centr.-Amer. Rhynch. ii, n. spp.
Cryphocriscus macrocephalus, pl. xxi fig. 2, characters, CHAMPION, p. 355, t. c.
Curicta scorpion, pl. xxi fig. 1, p. 352, CHAMPION, t. c.
Deinostoma dilatatum, pl. xxi fig. 18, p. 362, CHAMPION, t. c.
Gelastocoris bufo, pl. xx figg. 16, 17, p. 348, *variegatus*, figg. 19, 20, p. 349, CHAMPION, t. c.
G. rotundatus, p. 347, pl. xx fig. 18, *vicinus*, p. 349, Centr. Amer., id. t. c., n. spp.
Limnocoris stali, pl. xxi fig. 12, *signoreti*, fig. 13, *inornatus*, fig. 14, *virescens*, fig. 15, characters, CHAMPION, p. 359, t. c.
L. insularis, Honduras, fig. 16, p. 359, id. t. c., n. sp.
Mononyx amplicollis, p. 350, pl. xx fig. 26, *fuscipes*, figg. 21–23, *nepæformis*, figg. 24, 25, p. 351, *raptorius*, fig. 27, p. 352, characters, CHAMPION, t. c.
Montandonista n. n. for a subgen. of *Belostoma*, KIRKALDY, p. 6, Entomologist xxxiv.
Notonecta mexicana, pl. xxii figg. 6, 7, *monteruma*, figg. 8, 9, *undulata*, fig. 10, *americana*, fig. 11, p. 370, characters, CHAMPION, Biol. Centr.-Amer. Rhynch. ii.
Pedinocoris macronyx, pl. xxi fig. 22, p. 364, CHAMPION, t. c.
Pelocoris femoratus, characters, p. 360, pl. xxi fig. 17, CHAMPION, t. c.
Pelagonus perbosci, figure, pl. xx fig. 11, p. 345, CHAMPION, t. c.
P. æneifrons, p. 345, pl. xx figg. 12, 13, *viridifrons*, fig. 14, *acutangulus*, fig. 15, p. 346, Centr. Amer., id. t. c., n. spp.
Plea striola var., p. 375, pl. xxii fig. 17, CHAMPION, t. c.
Tenagobia socialis, figured, pl. xxii fig. 7, p. 383, CHAMPION, t. c.

Zaitha anura, pl. xxii fig. 1, *elliptica*, fig. 2, *fusciventris*, pl. xxi fig. 23, p. 365, *minor*, fig. 24, *micantula*, fig. 25, p. 366, characters, CHAMPION, t. c.

HEMIPTERA-HOMOPTERA.

[The following memoirs relate to *Hemiptera-Homoptera*, viz.:—BALL (59), BREDDIN (167), BUCKTON (177), DISTANT (347, 348, 350), HEIDEMANN (607), HORVÁTH (641, 642), HOWARD (652), IMHOF (666), KIRKALDY (750, 751, 753, 755), KONINGSBERGER (780), LAMBERTIE (805), MACGILLIVRAY (869), MELICHAR (911-914), OSBORN & BALL (989, 990), SCHOUTEDEN (1227), SCUDDER (1255), UHLER (1405). Also *Psyllidæ*, p. 290, *Aphidæ*, p. 290, *Aleurodidæ*, p. 291, and *Coccidæ*, p. 291.]

Morphology and classification, continuation of translation of HANSEN's 1890 paper, Entomologist xxxiv, pp. 149 etc.

Brief notes on external structure, IMHOF (666).

CICADIDÆ.

Table of N. American genera, and list of species, MACGILLIVRAY, pp. 74-84, Canad. Ent. xxxiii.

Cicada sylvana, Queensland, DISTANT, p. 591, pl. xvi fig. 1, Tr. ent. Soc. London 1901; *C. bonhottei*, Bahamas, DISTANT, p. 71, Ent. Mag. xxxvii : n. spp.

Cicadetta pilosa, p. 482, *sibilatrix*, p. 483, Asia Minor, HORVÁTH, Termes. Fuzetek xxiv, n. spp.

Cosmopsaltria hainanensis, Hainan, DISTANT, p. 247, Entomologist xxxiv, n. sp.

Pacilopsaltria hova, Madagascar, DISTANT, p. 591, pl. xvi fig. 2, Tr. ent. Soc. London 1901, n. sp.

FULGORIDÆ.

Acanalonia viridis, Haiti, p. 187, *depressa*, America, *inclinata*, Centr. America, p. 190, MELICHAR, Ann. Hofmus. Wien xvi, n. spp.

Acanaloniidæ and *Flatidæ*, monograph, first part, MELICHAR, pp. 178-258, t. c.

Adexia n. g., p. 229, with *A. fowleri*, p. 230, *melanoneura*, p. 231, n. spp., S. America, and *Ormenis erminea* Fowl., MELICHAR, t. c.

Apache n. n. for *Hynnys* Burm. nec Cuv., KIRKALDY, p. 6, Entomologist xxxiv.

Bacusa n. g., p. 191, for part of *Acanalonia*, with *B. agilis*, Porto Rico, p. 192, *conata*, S. America, p. 193, n. spp., MELICHAR, Ann. Hofmus. Wien xvi.

Bythopsyrra n. g., p. 224, for part of *Cenestra*, with *B. illocata*, Sumatra, p. 226, *infixa*, Borneo, p. 227, n. spp., MELICHAR, t. c.

Calmar n. n. for *Mæonia* Stål nec Dana, KIRKALDY, p. 6, Entomologist xxxiv.

Cerynia trilineata, Sumatra, p. 219, *fulgida*, Celebes, *lineola*, China, p. 221, MELICHAR, Ann. Hofmus. Wien xvi, n. spp.

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- E. guignardi*, Canada, KING, pp. 334, Canad. Ent. xxxiii; *E. lymani*, p. 335, *rosa*, p. 336, Canada, KING, t. c. : n. spp.
- Eriococcus tinsleyi* var. n. *cryptus*, COCKERELL, p. 210, Canad. Ent. xxxiii.
- E. artemisiae*, California, KUWANA, p. 398, pl. xxv, figg. 1-10, Contr. Hopkins Lab. xxv, n. sp.
- Fiorinia kewensis*, London on *Howea*, NEWSTEAD, p. 82, Ent. Mag. xxxvii, n. sp.
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- Icerya purchasi*, in Java, ZIMMERMANN, p. 43, Med. Plantentuin Java xlv, 2.
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- Lecanium*; application of the name, *Calymnatus* Costa prior, COCKERELL, p. 91, Entomologist xxxiv; *Lecanium* and allies, table, COCKERELL & PARROTT, pp. 57, 58, Canad. Ent. xxxiii; *L. viride*, sexes, natural history, ZIMMERMANN, pp. 7-23, pl. i, figg. 5-15, Med. Plantentuin Java xlv, 2; *L. caryæ*, characters, KING, p. 50, Ent. News Philad. xii.
- L. australis*, Victoria, LIDGETT, p. 59, Victorian Natural. xviii; *L. adenostomæ*, California, KUWANA, p. 402, pl. xxvi, figg. 17-26, Contr. Hopkins Lab. xxv; *L. websteri*, N. America, KING, p. 106, Canad. Ent. xxxiii; *L. pini*, Canada, KING, p. 334, t. c. : n. spp.
- Lichtensia ephedrae*, Cairo, NEWSTEAD, p. 83, Ent. Mag. xxxvii, n. sp.
- Lophococcus* n. g. *Monophlebinæ*, p. 227, for *L. mirabilis* n. sp., Natal, p. 248, COCKERELL, Entomologist xxxiv.
- Monophlebus fulleri*, p. 223, *fortis*, p. 224, Natal, COCKERELL, t. c., n. spp.
- Mytilaspis pomorum*, in N. America, FELT (449); *M. pomorum* var. n. *candidus*, NEWSTEAD, p. 82, Ent. Mag. xxxvii.
- Neolecanium* subg. n. of *Lecanium*, PARROTT, p. 58, Canad. Ent. xxxiii.
- Orthezia lasiorum*, New Mexico, COCKERELL, p. 209, Canad. Ent. xxxiii, n. sp.
- Phenacoccus rubivorus*, New Mexico, COCKERELL, p. 215, Psyche ix; *P. dearnessi*, Ontario, KING, p. 180, Canad. Ent. xxxiii; *P. calcitectus*, New Mexico, COCKERELL, p. 334, Ann. Nat. Hist. vii; *P. wilmattæ*, New Mexico, COCKERELL, p. 57, op. cit. viii : n. spp.
- Planchonia* sp. injurious to sugar-cane, its *Apheline* parasite, ZEHNTNER (1509), pls. i, ii.
- Pollinia ovoides*, Natal, COCKERELL, p. 225, Entomologist xxxiv, n. sp.
- Pseudoaonidia clavigera*, Natal, COCKERELL, p. 226, t. c., n. sp.
- Pseudolecanium tokionis*, characters, KUWANA, p. 403, pl. xxvi, figg. 27-46, Contr. Hopkins Lab. xxv.
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- P. hunteri*, p. 144, *ehrhorni*, p. 145, N. America, KING, Canad. Ent. xxxiii; *P. viburni*, Canada, KING, p. 333, t. c. : n. spp.

- Rhizococcus viridis*, Australia, GREEN, p. 559, pl. xxxiii, P. Linn. Soc. N. S. Wales xxv, n. sp.
- Ripersia festuca*, California, KUWANA, p. 401, pl. xxv, figg. 11-16, Contr. Hopkins Lab. xxv; *R. aurantia*, p. 51, *confusella*, p. 52, *portera*, p. 53, *salmonacea*, *tenuipes*, p. 54, *trichura*, *trivittata*, p. 55, *viridula*, p. 56, *magna*, p. 57, New Mexico, COCKERELL, Ann. Nat. Hist. viii : n. spp.
- Ripersiella leucosoma*, p. 165, *kelloggi*, p. 166, N. America, COCKERELL, P. Soc. Washington xiv, n. spp.
- Tachardia lacca*, and lac industries in India, WATT (1452).
- T.* (*Tachardina* subg. n.), *albida*, Natal, COCKERELL, p. 249, Entomologist xxxiv; *T. actinella*, S. Africa, COCKERELL & KING, p. 342, t. c. : n. spp.
- Tachardiella* subg. n. of *Tachardia* for American and Australian species, COCKERELL, p. 249, t. c.
- Tachardina* subg. n. of *Tachardia*, q. v.
- Termitococcus* n. g. with *T. aster*, p. 4, *brevicornis* n. spp., p. 5, S. America with Termites, SILVESTRI, No. 395, Boll. Mus. Torino xvi.

(F.) NEUROPTERA.

Historical, Austria, HANDLIRSCH (602).
Position and number of ocelli, IMHOF (664).

TRICHOPTERA.

[Cf. BANKS (63, 64), BETTEN (957), BRAUER (154), Klapálek (759, 760), MARTYNOW (890), McLACHLAN (899), MORTON (946, 947), OSTWALD (993), ULMER (1407), ZANDER (1504).]

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Details as to various larvæ, mostly not named, in the Adirondacks, BETTEN, pp. 561-573, Bull. U. S. Mus. 47.

The glands of the larvæ, MANTYNOW (890).

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Drusus chapmani, Switzerland, McLACHLAN, p. 162, Ent. Mag. xxxvii, n. sp.

Eremopsyche n. g. *Sericostomatidæ*, for *E. frontalis* n. sp., Jalapa, BANKS, p. 367, Tr. Amer. ent. Soc. xxvii.

Helicopsyche, cases, McLACHLAN, p. vi, P. ent. Soc. London 1901.

H. mexicana, Cuernavaca, BANKS, p. 368, Tr. Amer. ent. Soc. xxvii, n. sp.

Heteroplectron maculatum, Vera Cruz, BANKS, p. 369, t. c., n. sp.

Holocentropus picicornis, larva, case, ULMER, pp. 200-222, Allg. Zeitschr. Ent. vi.

Hydropsyche mexicana, Tacubaya, BANKS, p. 369, Tr. Amer. ent. Soc. xxvii, n. sp.

Leptocelia dorsalis, p. 368, *gracilis*, p. 369, Mexico, BANKS, t. c., n. spp.

Leptocerus mexicanus, Cuernavaca, BANKS, p. 368, t. c., n. sp.

Limnophilus bipunctatus, larva, cases, ULMER, p. 134, Allg. Zeitschr. Ent. vi; *L. rhombicus*, larva and case, ULMER, t. c., pp. 223-226, cuts.

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Oecetis canariensis, Canary islands, BRAUER, p. 474, SB. Ak. Wien cix, Abth. i, n. sp.

Olemira mexicana, Tacubaya, BANKS, p. 367, Tr. Amer. ent. Soc. xxvii, n. sp.

Philopotamus mexicanus, *bicolor*, Mexico, BANKS, p. 370, t. c., n. spp.

Platyphylax discolor, Mexico, BANKS, p. 367, t. c., n. sp.

Stactobia eatoniella, characters, Klapálek, p. 3, pl., Rozprav. Ceske Ak. ix, No. xiv.

NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

[Cf. BANKS (63, 64, 66, 67), BRAUER (154), CURRIE (312), HINE (628, 629), Klapálek (759), Kolbe (775), McCLENDON (897), McLACHLAN (898), MORTON (946), NEEDHAM (957).]

Bittacus: of N. America, HINE (628), replaced by the next, viz. *Panorpidæ* of N. America, HINE (629).

Boreus unicolor, N. America, HINE, p. 256, Bull. Denison Univ. xi, n. sp.

Chauliodes, larvæ of: figures of *C. serricornis*, pl. xi, NEEDHAM, pp. 544-550, Bull. N. York Mus. 47.

Climacia dictyona, Adirondacks, NEEDHAM, p. 558, pl. xii, figg. 1, 2, t. c., n. sp.

Chrysopa perla var., Klapálek, p. 208, pl. viii, fig. 2, Zichy Ergebn. ii.

C. bimaculata, Texas, McCLENDON, p. 215, Psyche ix; *C. mexicana, tolteca*, Mexico, BANKS, p. 364, Tr. Amer. ent. Soc. xxvii: n. spp.

Cryptoleon n. g. type *Myrmeleon conspersus* Ramb., BANKS, p. 330, Canad. Ent. xxxiii.

Eremoleon n. g. type *M. macer* Hag., BANKS, p. 366, Tr. Amer. ent. Soc. xxvii.

Halter glauningi, p. 66, fig. 1, *usambica*, p. 69, E. Africa, Kolbe, SB. Ges. naturf. Berlin 1901, n. spp.

Hemerobius quadrifasciatus distinguished from *H. concinnus*, MORTON, pp. 163-165, cuts, Ent. Mag. xxxvii; *H. inconspicuus, pellucidus*, distinguished, MORTON, pp. 222-224, cuts, t. c.; *H. longifrons* not European, McLACHLAN, p. 165, Ent. Mag. xxxvii.

H. ? humuli, Canary islands, BRAUER, p. 475, SB. Ak. Wien cix, Abth. i; *H. cockerelli*, New Mexico, BANKS, p. 286, Psyche ix: n. spp.

Inocellia crassicornis in Sweden, BORG, p. 175, Ent. Tidskr. xxii.

Maracandula n. g. for *Myrmeleon pygmaeus* Hag., CURRIE, p. 436, P. ent. Soc. Washington iv.

Microleon n. g. near *Cryptoleon*, for *M. apicalis* n. sp., Durango, BANKS, p. 365, Tr. Amer. ent. Soc. xxvii.

Myrmeleon: unnamed larvæ described, Klapálek, pp. 210-219, pl. viii, Zichy Ergebn. ii.

M. ambiguus, Siberia, Klapálek, p. 209, t. c., n. sp.

Panorpa communis var. *diffinis*, note, Klapálek, p. 207, pl. viii, fig. 1, t. c.

P. latipennis, p. 248, *claripennis*, p. 262, N. America, HINE, Bull. Denison Univ. xi, n. spp.

Polystachotes punctatus, pl. xxvi, fig. 2, eggs etc., p. 551, NEEDHAM, Bull. N. York Mus. 47.

Sialis mexicana, Jalapa, BANKS, p. 363, Tr. Amer. ent. Soc. xxvii, n. sp.

Sisyra umbrata, Adirondacks, NEEDHAM, p. 555, pl. xii, figg. 6, 7, Bull. N. York Mus. 47, n. sp.

Ulula albifrons, Arizona, BANKS, p. 172, Ent. News Philad. xii; *U. tuberculata*, Mexico, BANKS, p. 366, Tr. Amer. ent. Soc. xxvii: n. spp.

Uroleon n. g. for *U. caudatus* n. sp., Canary Islands, BRAUER, p. 475, SB. Ak. Wien cix, Abth. i.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

[Cf. BIRÓ (112), BRAUER (154), ENDERLEIN (416), PEYERIMHOFF (1029), REUTER (1162).]

Spinning *Psocidæ*, BIRÓ (112).

Mode of emergence from egg, PETERIMHOFF, pp. 149–152, Ann. Soc. ent. France lxx.

Bertkauia prisca, habits, ENDERLEIN, p. 539, Zool. Jahrb. Syst. xiv.

Cæcilus burmeisteri var. n. *lipsiensis*, ENDERLEIN, p. 541, t. c.

Dictyopsocus n. g. for *Thyrsochphorus*, *pennicornis* Burm., ENDERLEIN, p. 543, t. c.

Elipsocus abietis var. n. *tharandtensis*, ENDERLEIN, p. 543, t. c.

Elipsocus reyi, Berlin, ENDERLEIN, p. 542, pl. xxxv, fig. 6, t. c., n. sp.

Ischnopteryx iridescent, Ecuador, ENDERLEIN, p. 544, t. c., n. sp.

Leptella helvimacula, Berlin, ENDERLEIN, p. 539, pl. xxxv, fig. 1, t. c., n. sp.

Leptopsocus n. g., p. 5, for *L. distinctus* n. sp., Finland, p. 6, REUTER, Acta Soc. Faun. Fenn. xvii, No. 3.

Mesopsocus laticeps var. n. *pedunculatu*, ENDERLEIN, p. 541, Zool. Jahrb. Syst. xiv.

Micropsocus n. g. near *Ectopsocus*, p. 546, for *M. waterstradti* n. sp., Borneo, p. 547, pl. xxxv, figg. 11, 12, ENDERLEIN, t. c.

Peripsocus subpupillatus var. n. *quadriramosus*, ENDERLEIN, p. 541, t. c.

Philotarsus flaviceps var. n. *fuscoguttata*, ENDERLEIN, p. 543, t. c.

P. fraternus, Bolivia, ENDERLEIN, p. 547, t. c., n. sp.

Psocus major var. n. *ocellata*, ENDERLEIN, t. c., p. 539.

P. ? annulipes, Finland, REUTER, p. 3, Acta Soc. Faun. Fenn. xvii, No. 3, n. sp.

Pterodela pedicularia var. *giardi*, note, ENDERLEIN, p. 546, Zool. Jahrb. Syst. xiv.

Teniestigma n. g. for *Psocus elongatus* and *clurus*, ENDERLEIN, p. 546, t. c.

Thyrsochphorus equatorialis, Ecuador, ENDERLEIN, p. 545, t. c., n. sp.

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TERMITIDÆ.

[Cf. BANKS (61), SILVESTRI (1288–1291), TSCHERWINSKY (1383).]

Origin of caste, ginecoid workers, SILVESTRI (1288).

New nematode in Termites nest in Africa, LINSTOW, Jena. Zeitschr. xxviii, p. 418.

Amitermes n. g. for *A. amifer*, *brevicorniger* n. spp., S. America, SILVESTRI, p. 4, No. 389, Boll. Mus. Torino xvi.

Anoplotermes turricola, *reconditus*, S. America, SILVESTRI, p. 8, No. 389, t. c., n. spp.

Armitermes heterotypus, *festivellus*, *euamignathus*, *odontognathus* and var. *minor*, p. 6, *nasutissimus*, p. 7, S. America, SILVESTRI, No. 389, t. c., n. spp.

Calotermes rugosus var. n. *occidentalis*, SILVESTRI, p. 3, No. 389, t. c.

C. fulvescens, *hirtellus*, p. 1, *modestus*, *latifrons*, *incisus*, *temnocephalus*, *triceromagus*, p. 2, *taurocephalus*, *lobicephalus*, p. 3, S. America, SILVESTRI, t. c., No. 389; *C. galapagoensis*, p. 544, *pacificus*, p. 545, Galapagos, BANKS, P. Washington Ac. iii : n. spp.

Capritermes fur, p. 5, with subsp. *microcerus*, *C. globicephalus*, p. 6, S. America, SILVESTRI, No. 389, Boll. Mus. Torino xvi, n. spp.

Cornitermes acignathus, *triaceris*, p. 4, *longilabius*, *orthocephalus*, *laticephalus*, p. 5, S. America, SILVESTRI, No. 389, t. c., n. spp.

Eutermes arcuarius subsp. n., SILVESTRI, p. 7, t. c.

E. burmeisteri, *canariensis*, *nasonowi*, TSCHERWINSKY (1383); *E. diversimiles*, *cyphergaster*, *heteropterus*, S. America, SILVESTRI, p. 7, t. c. : n. spp.

Leucotermes n. g. for *Termes tenuis* Hag., SILVESTRI, p. 3, No. 389, t. c.
Microcerotermes n. g. for *strunckii* Sorens., SILVESTRI, p. 3, No. 389, t. c.
Spinitermes brevicornis, S. America, SILVESTRI, p. 6, No. 389, t. c., n. sp.

EMBIIDÆ.

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PERLIDÆ.

[Cf. KATHARINER (704), KEMPNY (717), Klapálek (761), MORTON (948), NEEDHAM & BETTEN (957).]

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Chloroperla helvetica, Klapálek, Rozprav. Ceske Ak. ix, No. xx, p. 4, pl. i, figg. 8-11.

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Isogenus nubecula, characters, Klapálek, Rozprav. Ceske Ak. ix, No. 20, p. i, pl. i, figg. 3-7; *I. nubecula*, note, MORTON, p. 147, Ent. Mag. xxxvii.

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Perla maxima, ecdysis, KATHARINER, p. 258, Allg. Zeitschr. Ent. vi; *P. abdominalis*, Klapálek, Rozprav. Ceske Ak. ix, No. xx, p. 3, pl. i, figg. 1, 2.

Teniopteryx braueri, Europe, Klapálek, Rozprav. Ceske Ak. ix, No. xx, p. 7, pl. ii, figg. 33-38, n. sp.

EPHEMERIDÆ.

[Cf. EATON (396), LILLIE (848), NEEDHAM & BETTEN (957).]

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Leptophlebia strandii, Norway, EATON, p. 253, Ent. Mag. xxxvii, n. sp.

Metretopus n. g., p. 253, for *M. norvegicus* n. sp., Norway, p. 254, EATON, t. c.

ODONATA.

[Cf. BRAUER (154), CALVERT (199, 566), CURRIE (310, 311), HARVEY (605), HIGGINS (623), IMHOF (665), KELLICOTT (709), KIRBY (745), MARTIN (887), MORTON (946), NEEDHAM & HART (958), SCUDDER (1255), SONDHEIM (1315), WILLIAMSON (1493-1496).]

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- Odonata* of the Adirondacks, NEEDHAM, Bull. N. York Mus. 47, pp. 429-540, pls. 10 and 17-25 : many nymphs.
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Gomphus; the post-anal cells; the subgen. *Stylurus*, WILLIAMSON, pp. 205-217, pls. viii, ix, Tr. Amer. ent. Soc. xxvii; *G. descriptus* var. n. *borealis*, NEEDHAM, p. 453, Bull. N. York Mus. 47.
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Isoictia simplex, Australia, MARTIN, p. 244, Mem. Soc. zool. France 1901, n. sp.
Lestes alacer, p. 48, pl. iii, fig. 26, *simplex*, fig. 24, *forficula*, fig. 25, characters, CALVERT, Biol. Centr.-Amer. Neuropt.
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Planæschna tripunctata, p. 235, *sagittata*, p. 236, *longissima*, p. 237, *multi-punctata*, p. 238, Australia, MARTIN, Mem. Soc. zool. France xiv, n. spp.
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Tramea darwini ♂, CURRIE, p. 386, cuts, P. Washington Ac. iii.

THYSANOPTERA.

[Cf. GIARD (555), HINDS (627), REUTER (1158, 1161).]

Thysanoptera of Finland monographed, REUTER, Acta Soc. Faun. Fenn. xvii, No. 2.

- Æolothrips tibialis*, Finland, REUTER, p. 33, t. c., n. sp.
Anaphothrips striata, life history, injurious habits, HINDS (627).
A. angustipennis, litoralis, Finland, REUTER, p. 44, Acta Soc. Faun. Fenn. xvii, No. 2, n. spp.
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Compsothrips n. g. for *Phlæothrips albosignata* Reut., REUTER, p. 214, Ofv. Finska Forh. xliiii.
Cryptothrips flavipes, Crete, REUTER, p. 216, t. c., n. sp.
Heliothrips hæmorrhoidalis in Java, ZIMMERMANN, pp. 83, 84, pl. v, fig. 11, Med. Plantentuin Java xlv, 2.
Lisothrips n. g. for *L. wasastjernæ*, n. sp., Finland, REUTER, p. 26, Acta Soc. Faun. Fenn. xvii, No. 2.
Megalothrips longiceps, Corfu, REUTER, p. 215, Ofv. Finska Forh. xliiii, n. sp.
Phlæothrips obscuricornis, Finland, REUTER, p. 20, Acta Soc. Faun. Fenn. xvii, No. 2, n. sp.
Physopus rubiocincta, Guadeloupe, injurious to Cocoa, GIARD, p. 264, Bull. Soc. ent. France 1901, n. sp.
Rhipidothrips niveipennis, Finland, REUTER, p. 30, Acta Soc. Faun. Fenn. xvii, n. sp.
Thrips palustris, p. 58, *betulicolu*, p. 59, *piceicornis*, p. 60, Finland, REUTER, t. c., n. spp.
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(G.) *APTERA*.

Anatomy and morphology of *Thysanura* and more particularly of *Collembola*, phylogeny; WILLEM (1488).
Embryology and morphology, UZEL (1409).

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- [Cf. BANKS (61), PÉRINGUEY (1017), SCHÖTT (1225), SILVESTRI (1291-1293), UZEL (1409), WILLEM (1488).]
- Eutrichocampa* n. g. near *Campodea*, for *E. chilensis*, p. 240, *subterranea*, p. 241, n. spp., S. America, SILVESTRI, Bull. Soc. ent. Ital. xxxiii.
- Grassiella*, characters of the species, SILVESTRI, pp. 231-236, t. c.
- G. termitobia*, p. 13, *synaketa*, p. 14, S. America with Termites, SILVESTRI, Boll. Mus. Torino xvi, No. 398, n. spp.
- Japyx indicus*, characters, SCHÖTT, p. 328, Termes. Fuzetek xxiv.
- J. purcelli*, Cape Town, PÉRINGUEY, p. 133, Ann. S. African Mus. ii; *J. patagonicus*, Argentina, *megalocerus*, Chili, p. 215, *tunisinus*, Tunis, p. 216, *platensis*, Argentina, *anodus*, Chili, p. 218, *neotropicalis*, S. America, p. 219, *papuasicus*, N. Guinea, p. 221, *centralis*, Venezuela, p. 222, SILVESTRI, Bull. Soc. ent. Ital. xxxiii : n. spp.
- Lepisma pulchella*, Cape Verde Ids., p. 227, *pampeana*, p. 229, *andina*, p. 230, S. America, SILVESTRI, t. c.; *L. galapagoensis*, p. 541, *insularis*, p. 543, Galapagos, BANKS, P. Washington Ac. iii : n. spp.
- Machilis appendiculata*, p. 237, *pampeana*, p. 238, *platensis*, p. 239, S. America, SILVESTRI, Bull. Soc. ent. Ital. xxxiii; *M. mutica*, Galapagos, BANKS, p. 543, P. Washington Ac. iii : n. spp.
- Nicoletia subterranea*, Rome, p. 223, *neotropicalis*, p. 225, *armata*, p. 227, Argentina, SILVESTRI, Bull. Soc. ent. Ital. xxxiii, n. spp.
- Projapyx*; peculiarities of structure, phylogeny, SILVESTRI, Boll. Mus. Torino xvi, No. 399; Full characters, SILVESTRI, pp. 204-212, Bull. Soc. ent. Ital. xxxiii; *P. styliifer*, characters, SILVESTRI, p. 244, t. c.

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- [Cf. ABSOLON (3-10), BÖRNER (137-141), CARL (213), FOLSOM (470, 471), LEBEDINSKI (820), LÉCAILLON (823-828), SCHÖTT (1225), SKORIKOW (1298), UZEL (1409), VIRÉ (1423), WAHLGREN (1427), WILLEM (1488-1492).]
- The nomenclature of the parts of the leg, BÖRNER, p. 696, Zool. Anz. xxiv. Sense-organs, ABSOLON, Zool. Anz. xxiv, pp. 590-585.
- Distribution and dispersal of holarctic *Collembola*, FOLSOM, Psyche ix, pp. 159-162.
- Collembola* of Centr. Europe, with new classification: suborder i, *Arthropleona* with two families *Achorutidae*, *Entomobryidae*, and seven subfamilies; suborder ii, *Symphyleona*, with the two families *Neelidae*

and *Sminthuridae*; the new varieties of species contained in this work are not mentioned in our Record; BÖRNER, Abh. Ver. Bremen xvii. Also classification, BÖRNER (138).
 Catalogue of 224 Centr. European species, and many varieties, BÖRNER, Abh. Ver. Bremen xvii, pp. 129–140.
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 Ecdysis; specially of *Calistella*, SKORIKOW, Horæ Soc. ent. Ross. xxxv, pp. 156–159.
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Actaletes neptuni, characters, habits, WILLEM, Bull. Sci. France Belgique xxxiv, pp. 474–480, pl. xxiv.

Anoura spinosa, habitat N. Zealand, DENDY, p. 97, Tr. N. Zealand Inst. xxxiii.

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- Kalaphorura* subg. n. cf. *Aphorura*.
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(H.) ORTHOPTERA.

[The following memoirs relate to *Orthoptera* collectively, viz.: AZAM (52), BURR (180), EVANS (424), SCUDDER (1256).]

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- Australomantis* n. n. for *Harpax* Serv., REHN, p. 271, *Canad. Ent.* xxxiii.
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- [Cf. ALFKEN (14), BOLIVAR (335), KRAUSS (787, 788), MCNEILL (901), MORSE (943-945), PETRUNKEWITSCH & GUAITA (1028), REHN (1114, 1117, 1118, 1120), SCUDDER (1263), SÉMÉNOW (1267), TÜMPFEL (1398, 1399).]

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Odontoziphidrum n. g. near *Ziphidium*, for *O. apterum* n. sp., Florida, MORSE, p. 129, Canad. Ent. xxxiii.

Orchelimum agile, oviposition etc., MORGAN, p. 30, Bull. U. S. Dep. Agric. Ent. xxx.

- Phylloptera annulata*, Mexico, REHN, p. 223, Tr. Amer. ent. Soc. xxvii, n. sp.
Polyancistroides n. n. for *Pseudancistrus* Bol., REHN, p. 272, Canad. Ent. xxxiii.
Scudderia cuneata, Alabama, MORSE, p. 130, Canad. Ent. xxxiii, n. sp.
Symmetropleura teocela, Mexico, REHN, p. 222, Tr. Amer. ent. Soc. xxvii, n. sp.
Syntechna caudelli, Mexico, REHN, p. 224, t. c., n. sp.
Tettigonia; Linnean forms, types of genera, REHN, p. 120, Canad. Ent. xxxiii.
Xiphidium spinosum, p. 201, *occidentale* with varr. *camurum caudatum*, p. 202, *vicinum*, p. 203, N. America, MORSE, Canad. Ent. xxxiii; *X. gracillimum*, Florida, MORSE, p. 236, t. c.; *X. exitiosum*, Galapagos, McNEILL, p. 501, P. Washington Ac. iii : n. spp.
Zichya n. g. for *Ephippiger vacca* Fisch., BOLIVAR, p. 238, Zichy Ergebn. ii.
Zichyinae; new tribe for *Bradyporus*, *Zichya*, *Deracanthella*, BOLIVAR, p. 236, t. c.

ACRIDIIDÆ.

- [Cf. AZAM (51), BOLIVAR (130, 131), BRANCSIK (151), CAUDELL (220), GIARD (553), KNEISSL (763), KRAUSS (787, 788), KÜNCKEL (797), MARTINEZ (888), McNEILL (900-902), MORGAN (932), MORSE (943), MORSE & BRUNER (566), REHN (1114, 1115, 1117, 1120), SCUDDER (1257, 1262).]

A revision of the *Truxalinæ* of N. America was published, McNEILL (900), in 1896 or 1897 but has been omitted from previous records; the new generic names in it are included in the Index published by the Zool. Soc.: they are, *Radinotatum*, *Napaia*, *Oreina*, *Pedeticum*, *Amphitornus*, *Akentetus*, *Plectrophorus*, *Ligurotettix*, *Brunneria*, *Pnigodes*, *Eremnus*.

Sound production, KNEISSL (763).

- Acrida caiki*, Pekin, BOLIVAR, p. 228, Zichy Ergebn. ii, n. sp.
Akentetus versus *Acentetus*, REHN, p. 271, Canad. Ent. xxxiii.
Aræopteryx n. g. near *Anconia*, p. 102, for *A. penelope* n. sp., Arizona, p. 103, CAUDELL, Canad. Ent. xxxiii.
Bryodema barabense var. n. *roseipennis*, KRAUSS, p. 237, Zool. Anz. xxiv.
B. holdereri, p. 236, *lugens*, p. 238, Centr. Asia, KRAUSS, t. c.; *B. mongolica*, Urga, BOLIVAR, p. 233, Zichy Ergebn. ii : n. spp.
Bufonacris bruchii, Patagonia, BRANCSIK, p. 190, pl. iii, fig. 4, Jahresh. Ver. Trencsen xxiv, n. sp.
Callirhipis davidiana, sexes, BOLIVAR, p. 235, Zichy Ergebn. ii.
Caloptenus italicus in France, periodicity, GIARD, C.R. Soc. Biol. liii, p. 671.
Catantops solitarius, full characters, KRAUSS, p. 289, Verh. Ges. Wien li.
C. debilis, S. W. Africa, id., p. 291, t. c., n. sp.
Cavendia galla, Gallaland, REHN, p. 373, P. Ac. Philad. liii, n. sp.
Cordillacris n. n. for *Alpha* Br. nec Sauss., REHN, p. 271, Canad. Ent. xxxiii.
Episactus brunneri, pl. ii, figg. 15, 16, Biol. Centr.-Amer. Orthopt. ii.
Eremopachys n. g. *Eremobidarum*, p. 188, for *E. simplex* n. sp., p. 189, *bergii* n. sp., p. 190, pl. iii, fig. 3, BRANCSIK, Jahresh. Ver. Trencsen xxiv.
Eyprepocnemis somalicus, Africa, REHN, p. 377, P. Ac. Philad. liii, n. sp.
Gymnotettix n. g. near *Episactus*, for *G. occidentalis* n. sp., British Honduras, MORSE & BRUNER, p. 21, Biol. Centr.-Amer. Orthopt. ii.

- Hesperotettix floridensis*, Florida, MORSE, p. 130, Canad. Ent. xxxiii, n. sp.
Hippiscus citrinus, p. 88, *glaucipes*, p. 89, *validus*, p. 90, *croceus*, p. 91, N. America, SCUDDER, Canad. Ent. xxxiii, n. spp.
Ichthyotettix n. n. for *Icthydion* SAUSS., REHN, p. 271, Canad. Ent. xxxiii.
Melanoplus punctulatus, eggs, WALKER, p. 23, Canad. Ent. xxxiii. *M. differentialis*, life history and habits, MORGAN (932).
M. blandus, p. 161, *incisus*, p. 163, *femur-nigrum*, p. 165, *varicus*, p. 168, *immunis*, p. 170, *acutus*, p. 171, *usitatus*, p. 172, *pinctus*, p. 175, *truncatus*, p. 177, *phataliotiformis*, p. 179, *incultus*, p. 181, *franciscanus*, p. 183, *ablutus*, p. 185, *nanus*, p. 187, *ligneolus*, p. 188, *dealbatus*, p. 190, *pilatus*, p. 192, *ascensus*, p. 196, *validus*, p. 197, *algidus*, p. 199, *debilis*, p. 201, *calidus*, p. 203, N. America, SCUDDER, P. Davenport Ac. vii, n. spp.
Metator n. g., pp. 394, 398, for *Mestobregma pardalina* SAUSS., McNEILL, P. U. S. Mus. xxiii.
Orbillus namaqua, S. W. Africa, KRAUSS, p. 288, Verh. Ges. Wien li, n. sp.
Perixerus lævis, Mexico, REHN, p. 98, Tr. Amer. ent. Soc. xxvii, n. sp.
Podisma polita, Oregon, SCUDDER, p. 158, P. Davenport Ac. vii, n. sp.
Pseudotrimerotropis subg. n. of *Trimerotropis*, REHN, p. 334, Tr. Amer. ent. Soc. xxvii.
Pyrgomorpha cypria, Cyprus, BOLIVAR, p. 190, Bull. Soc. ent. France 1901; *P. sanderi*, S. W. Africa, KRAUSS, p. 287, Verh. Ges. Wien li : n. spp.
Schistocerca americana, characters and distribution, KÜNCKEL, C.R. Ac. Sci. cxxxiii, pp. 802-805.
Sphodromerus sanguiniferus, Gallaland, REHN, p. 379, P. Ac. Philad. liii, n. sp.
Stenobothrus azami, Cyprus, BOLIVAR, p. 189, Bull. Soc. ent. France 1901; *S. horvathi*, Mongolia, BOLIVAR, p. 231, Zichy Ergebn. ii : n. spp.
Tæniopoda burmeisteri, p. 266, *gutturosa*, p. 268, *pulchella*, p. 269, Centr.-Amer., BOLIVAR, Bol. Soc. espan. i, n. spp.
Teicophrys n. g. *Eumastacinae*, p. 20, for *T. fusiformis* n. sp., Lower California, MORSE & BRUNER, Biol. Centr.-Amer. Orthopt. ii.
Tettigidea plagiata, *parvula*, *tecta*, p. 17, *nigra*, p. 18, Mexico, MORSE, t. c., n. spp.
Tettix subulatus, *bipunctatus*, Sahlberg's characters, KIRKALDY, p. 241, Entomologist xxxiv.
Tmethis Fieb. = (*Eremobia* Serv.) REHN, p. 272, Canad. Ent. xxxiii.
Trepidulus n. g., pp. 394, 398, for *T. rosaceus* n. sp., California, not described, McNEILL, P. U. S. Mus. xxiii, No. 1215.
Trimerotropis; full paper of which the n. spp. were recorded last year, McNEILL, t. c.
Tropinotus versus *Tropidonotus*, REHN, p. 272, Canad. Ent. xxxiii.
Xiphocera versus *Xiphicera*, REHN, p. 272, t. c.

XIV. ECHINODERMA.

BY

F. A. BATHER.

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INTRODUCTION.

I. TITLES. The annual harvest increases. Even without the additional energy that was devoted at the close of the last century to gleaning what had been dropped, the total is but some thirty less, while the actual number for 1901 is 9 more than in 1900, which was itself an advance on any previous year. The total of 340 is composed as follows: 1899, 1; 1890, 1; 1891, 1; 1893, 2; 1894, 2; 1895, 2; 1896, 2; 1897, 4; 1898, 8; 1899, 8; 1900, 42; 1901, 267. This brings the total for 1900 up to 299. The numbers as they stand might have been magnified by counting various abstracts and translations as separate items, and might have been further increased had the Recorder cared to admit a number of works which he supposes to contain matter relating to Echinoderms, but which he has failed to see.

The task of compiling this annual list, though laborious, is interesting, and it might even become a pleasure if only writers, editors, and publishers could be induced to spare their colleagues a vast amount of drudgery that is the more irritating because it ought never to be necessary. When authors' reprints bear the original pagination and date, when secretaries of provincial societies think it worth while to send their publications promptly to one of the largest scientific centres in the world, instead of keeping them back to save two-pennyworth of paper and postage, when one's colleagues reply to polite questions and publishers condescend to execute business orders—then perhaps we shall no longer cry: "A Recorder's lot is *not* a happy one."

The large number of Titles might, however, give a false impression of the amount of work done if we did not recognise that results and remarks essentially the same were published many times over. A translation may be tolerated; if from Russian or Japanese, it may be even welcomed. A straightforward reprint or piracy may have its excuse for the public, if not for the publisher. But where is the need for this perpetual hash up of the same meat, with just enough change in the sauce to make it pass on the menu as a new dish? To take but one example: Nos. 180, 181, 182, with their abstracts, contain nothing that is not in No. 127. The additional absurdity of the "Preliminary notice" to which attention has so often been called, in this Record and elsewhere, is manifested by a comparison of KOEHLER (172) of this year with KOEHLER (180) of last year's Record. In (172) two genera and four species of Echinoids and 14 spp. of Ophiuroids are introduced as new, while no hint whatever is given of the fact that all the names except one had been published in the previous year, and that 11 of those names had then been accompanied by a sort of a description. These latter have been indexed herein, not as *n. g.* or *n. sp.*, but as "Koehl. 1900." Thus it is that the drudgery of the student is duplicated and the confusion of nomenclature made worse confounded. In some cases it really seems scarce worth while to abstract a preliminary note, for before the Record goes to press the final work appears, and, to half of the author's deeply interesting conclusions have been cancelled or modified.

The length of the list is further increased, some say unduly so, by papers that are little more than records of the occurrence of fossils, and by accounts of developmental mechanics in which certain Echinoderms serve merely as the *corpora vilia experimenti*. These together compose more than half the list; but it would be difficult to include some, which certainly ought to find a place, and to reject others.

Considering then the amount of poor grain, not to say chaff, in our harvest, it becomes a duty briefly to indicate the weightier material.

II. BIOLOGY. A. The general views mentioned under this head in the Subject-Index, are for the most part repetitions or elaborations of ideas previously published. Those whose interest in the evolution of Cretaceous *Echinoidea* has been aroused by ROWE's papers, will note his remarks with pleasure, and should turn to the parallel, though less detailed, work of ELBERT (103).

The classification of the Holothurians has long been considered unsatisfactory. It was plain that LUDWIG's system did not follow the phylogeny that he himself outlined, yet no other writer has been bold enough to take the obvious next step. SLUITER (284) has not taken it, but he has made it still easier by insisting on a yet more intimate union between the Elasmipods and the recognised *Holothuriidae* (for details see II, A, iii, and the beginning of IV, B). REIFFEN (258) on the other hand, in his excellent account of *Ludwigia*, tightens the bond between *Cucumariidae* and *Molpadiidae*. The principles that guide SLUITER are such as will make havoc with most of our existing classifications; but if the postulate of classifica-

tion according to descent be once granted, they are sound, and his introduction deserves the attention of all morphologists.

B. Speculators on general Echinoderm morphology, and on the relations of the Crinoids to the other Classes, may turn to Russo's notes to his translation of BATHER (18), and to his paper (269). Fuller account of his views will be more in place next year.

That moot question of the relations of *Ophiuroidea* to *Asteroidea*, discussed in the Introduction to last year's Record, receives fresh light from ZUR STRASSEN's re-examination of the mouth-skeleton of the former Class (338). His results (see II, B, i, e, 5) favour those who would keep the two Classes distinct.

JAEKEL's foundation of a new Class *Carpoidea* (162) puts into effect a suggestion, already made in No. 19 of last year's Record, of an equivalent Class under the more familiar name *Anomalocystida*. Whether the Class, if accepted, will ultimately retain all the genera assigned to it by JAEKEL is a question that can more easily be answered when the fuller statement of his case appears.

Anatomical facts that are novel, but of more restricted import, are referred to under the various Classes. In *Holothurioidea*, besides REIFFEN's study of a new genus, we note THEEL's careful account of the generative organs of *Mesothuria intestinalis*, which is hermaphrodite (298); the relations of the gonads to phagocytes may have some bearing on the renal function which RUSSO has assigned to the gonads of *Holothuria*. Passing over the scattered facts indexed under *Echinoidea*, we find PFEFFER's valuable dissertation on the supposed eyes of the *Asteroidea* (242), with which should be read BEER's philosophical discussion of primitive visual organs (24). CUÉNOT's paper (78), though professedly physiological, contains a highly important anatomical study of the lacunar system of starfish, with yet a new explanation of the ovoid gland. Under *Crinoidea* the work of the year is SPRINGER's magnificent monograph (290) on the structure and relations of *Uintacrinus*, which turns out to have had an exocyclic mouth (and presumably gut) like that of *Actinometra*. The discovery of infrabasals in some specimens of *U. socialis*, which usually has none, induces SPRINGER to attack BATHER's division of the *Crinoidea* into *Monocyclica* and *Dicyclica*, with a vigour and confidence that imply his forgetfulness of the fact that BATHER proposed his classification with a full knowledge of this peculiarity in *Uintacrinus*.

C. The most important paper in Physiology is that by CUÉNOT (78), who discusses the digestion of the food, the circulation of the nutrient fluid, and the excretion of the waste products in *Asteroidea*; with this should be read COHNHEIM (70).

D. The numerous entries under Bionomics show that the economic importance of the starfish continues to produce many observations on its feeding. A more speculative subject is the meaning of the colours of Echinoderms, especially those of the deep sea. The suggestion, due to Weismann, that the phenomena of regeneration can throw light on the processes of heredity and evolution, is the probable cause of an outburst of papers on the subject; among them those by DAWYDOFF (84), MEAD (207), PRZIBRAM (250), and RIGGENBACH (261) are most worthy of attention, while MORGAN's fascinating review of the whole subject (213) should by this time be known to all biologists.

F. Of Embryological study in the strict sense there is nothing noteworthy. MORTENSEN's account of the Echinoderm larvae of the N. Atlantic adds a little to his previous studies (156, 157 of Zool. Rec. for 1898). The most serious study of post-larval growth is that made on a large number of *Uintacrinus* by SPRINGER (290).

The speculations of the experimental embryologists do not perhaps appeal to the specialist in Echinoderms; but it is well for the latter to

urge on those gentlemen the need for an accurate determination of the material with which they work. They are too much inclined to infer the universal from the particular, and to overlook the fact that species and even local races differ from one another in their reproduction and development, just as much as in their habits and perhaps more than in their structure.

III. DISTRIBUTION. A. The Geographical part, in which bathymetric as well as horizontal extension is included, indexes several contributions of importance. THEEL (297) strikes a blow for the bipolar hypothesis, but its effect is weakened when KOEHLER (172) concludes from the 'Belgica' collections that hitherto the truly Antarctic fauna has not entered into the argument, and that, so far as Echinoids and Ophiuroids are concerned, the nearer one approaches the South Pole the less is the resemblance to the Arctic fauna. The circumpolarity of Arctic Echinoderms is brought out by RANKIN (252) and CLARK (62).

Besides the results of the 'Belgica' expedition from KOEHLER (172) and HÉROUARD (150), we now receive notes on the Echinoids of the 'Valdivia' from DOEDERLEIN (84), and descriptions of an unexpectedly large number of new species of Holothurians collected by the 'Siboga', also in the Indian Ocean. Valuable lists of Western Atlantic Echinoderms are furnished by CLARK (64, 65, 66), RANKIN (252), and WHITEAVES (320), while CLARK's accounts of recent collections from the Pacific coast of N. America (62, 63) also claim attention. PRUVOT (248) has made a detailed examination of a district in the West Mediterranean. The distribution of *Asterias* within limited areas is carefully studied by BUEKEL (48) and MEAD (207).

B. A characteristic feature of the Geological index is the large number of fossil occurrences of species still living. The more important papers on extinct faunas are those by AIRAGHI (1), J. M. CLARKE (69), ELBERT (103), FOURTAU (119), GAUTHIER (127), LORIOI (192), NOETLING (225), OPPENHEIM (229), LAMBERT in PETITCLERC (240), ROWLEY (267) & in GREENE (141, 142), and YOSHIWARA (332).

As before, the names quoted in Part III are those of genera alone. Reference to Part IV will however always show the species referred to. In the present Record this principle has been extended to Part II; while in Part IV a system of referring back to II & III has avoided considerable repetition. Thus the bulk of the Record has been reduced, doubtless at the expense of convenience; but reduction had become a necessity. For further hints as to the way of consulting the Subject-index to the best advantage, reference should be made to the Introductions of former years.

IV. SYSTEMATIC. The works that deal with the wider questions of taxonomy have, for the most part, already been mentioned in connection with phylogeny (II, A, iii) from which it becomes increasingly difficult to divorce them. Those descriptive of recent or fossil faunas have been alluded to under III. The following are the chief additional items: *Ludwigia*, a new genus intermediate between *Cucumariidae* and *Molpadidae*, described by REIFFEN; *Bathyherpystikes* a new Synallactine, and *Rhipidothuria* a new Elpidiine, due to SLUITER and HÉROUARD respectively. COWLES in CLARK (65) describes a new *Cucumaria* with care of the brood, and CLARK himself proposes a new genus, *Thyonepsolus*, of somewhat doubtful validity. Among new genera of *Echinoidea* are *Gymnopatagus* of DOEDERLEIN, *Holasteropsis* of ELBERT, *Pseudopileus* and *Neoclypeus* of DE LORIOI, *Mariania* and *Kovasendia* of AIRAGHI, and *Dumbea* of CRAGIN; none of these is very striking. Other new names are *Lefortia* and *Pomelopsis* (both for the same thing), *Trochotiara*, and the hypothetical *Euporophyma*, of which the chief diagnostic is the imperfect preservation of the specimens. The flood of new genera and subgenera in *Stelliformia*, as BELL proposes to call the *Asteroidea* + *Ophiuroidea*, has subsided, and instead we have the useful synopsis by MEISSNER in HAMANN, the service-

ability of which would have been vastly increased had the synonyms found a place in the index to genera. The Introduction to last year's Record expressed the opinion that "no classification" of the *Ophiuroidea* "that omits the fossils can be considered as other than a trifling with the subject." The Recorder of course was unaware that by these words he was pre-judging Dr MEISSNER's classification, summarised in the opening paragraph of IV, E. There are no new genera of *Crinoidea* either, but new species are fully described by FOLLMANN and by WOOD, while ETHERIDGE gives a much needed redescription of *Pentacrinus australis* Moore, which he correctly refers to *Isocrinus*. SPRINGER's union of the Westphalian and American species of *Untacrinus* carries important consequences to the stratigraphist; but is it justified? ROWLEY (267) proposes two new genera of *Blastoidea*—*Lophoblastus* and *Carpenteroblastus*, not differing greatly from those already known. J. M. CLARKE revises the N. American *Agelacrinidae*, reducing all, including some novelties, to the three genera *Agelacrinites* (as he persists in calling it), *Discocystis*, and *Lepidodiscus*: many of the statements in this paper would probably have been put otherwise had Professor Clarke used the Zoological Record. JAEKEL in his suggestive sketch of the *Carpoidea* (v. supra) finds it necessary to institute the new genera *Mitrocystella* and *Canadocystis* for species already known, as well as *Ceratocystis* and *Rhipidocystis* for new types. He makes several new Orders and Sub-orders, as detailed under IV G.

It continues necessary to point out the extreme difficulty, in many cases, of deciding whether or no a name be new. Some authors say nothing; others do worse, they introduce the name with a reference to the date when they first thought of it, and send one on a wild-goose-chase after a non-existent pamphlet; others again merely attach their own name; but how few take the natural and intelligible course of labelling a new genus or species as such by means of 'n. g. et sp.'! Some indeed profess to do so, and leave the reader to discover that there has already been a 'preliminary description.'

With the defects thus inevitable, the following analysis may represent the additions to the System during 1901:—

	New genera	Altered generic names	New species	New varieties
Holothurioidae	4	0	87	2
Echinoidea	7+1?	3	94+1 n. n.	16
Asteroidea	0	0	3	2
Ophiuroidea	0	0	14	0
Crinoidea	0	0	12	2
Cystidea	4	0	10+1 n. n.	0
Blastoidea	2	0	4	0
Total	17+1?	3	224+2 n. n.	22

CORRIGENDA in previous Records.

Record for 1897, vol. XXXIV:—

- p. 32. No. 316. "STEFANO, G. DE. Osservazioni etc." should be
"STEFANO, GIOVANNI DI. Nuove osservazioni etc."

Record for 1900, vol. xxxvii :—

- p. 19. No. 90. DE STEFANO, G. This is GIUSEPPE, not to be confused with GIOVANNI DI STEFANO or CARLO DE STEFANI. After this entry, insert : "see also STEFANO, G. DE (316)."
- p. 42. No. 367. ŽELÍZKO. Reference should read "SB. Bohmisch. Ges. 1899," not "1900." It was published in 1900.
- p. 78. *Psychrotrepes*. Add "[err. pro *Psycheotrepes*]"

The Recorder is always glad to receive corrections, and would be specially grateful if Authors, Editors, or Publishers would occasionally enable him to remove the asterisk indicating that a work has not been seen.

I. TITLES.*

- AIRAGHI, C. (4) Zool. Rec. 1899. Abstracts: by A. TORNUST, N. Jahrb. Min. 1901, ii, p. -485- (Nov. 1901); by P. E. VINASSA DE REGNY, Geol. Centrbl. i, p. 735 (1 Dec. 1901); Boll. Com. geol. Ital. xxxii, p. 95 (1901).—(3) Zool. Rec. 1900. Abstracts: by P. E. VINASSA DE REGNY, Geol. Centrbl. ii, pp. 157, 158 (1 March, 1902); by A. TORNUST, N. Jahrb. Min. 1901, ii, p. -483- (Nov. 1901); Boll. Com. geol. Ital. xxxii, p. 94 (1901).
1. —. Echinidi Terziari del Piemonte e della Liguria. *Palæontogr. ital.* vii, pp. 149-218, pls. xix-xxvii. (Dec. 1901 or Jan. 1902.)
[III, B, ii, c, d, e, f. iv, c.]
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- VALETTE, A. See PERON (238).
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[II, E, iv.]
- ZLATARSKI, —. See PAQUIER & ZLATARSKI (233).
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II. BIOLOGY.

(A.) EVOLUTION.

- i. **General Principles**:—General evolutionary principles of classification applied to *Echinoderma*; BATHER (18) p. 22.—Increase in size and skeletal mass supposed characteristic of crinoid evolution; GRATACAP (138) pp. 93, 97.—Lower Carboniferous *Crin.*, acme of development of the Class, illustrating a "biological crisis"; GRATACAP

(139) pp. 232-234.—Antique character of deep-sea *Ech.*; SEELIGER (275) p. 47.—Inability to deposit calcareous stereom in deep-sea animals, e.g. *Ech.*, not due to absence of calcium carbonate; SHIPLEY (279) p. 244.

- ii. **Relations of Echinoderma**:—to classes of Phylum *Archicodonta* (see IV, A); MASTERMAN (203) pp. 170-176.—Early stages in evolution of Echinoderms from *Dipleurula*, relations to *Hemichorda*, and relations of *Ast.* to *Crin.*; MASTERMAN (202).—Relations of Echinoderm ancestor to primitive *Coelentera*; BATHER (18) p. 25.
- iii. **Phylogenies of smaller groups**:—*Elpidiidae* polyphyletic, being derived from various genera and spp. of *Holothuriinae*, whose descendents have passed through the Synallactine stage (similarly polyphyletic) to adapt themselves to deep-sea conditions, thus, *Bathyplores*, *Paeleopatides*, *Pseudostichopus*, *Synallactes*, and *Meseres* are connected with *Stichopus* spp., while *Mesothuria* comes from a sp. of *Holothuria*; SLUITER (284) pp. 1-6 (see further IV, B).—Phylogeny of *Hol.*, *Ludwigia* a link between *Cucumariidae* and *Molpadidae*; REIFFEN (258), p. 617.

Further confirmation of evolution of *Micraster*, as in ROWE (202) Zool. Rec. 1899, (pp. 9, 16, 46, 47, 48, 52); similar principles hold good for *Echinocorys* (p. 52): ROWE (265).—Evolution of Turonian and Senonian spp. of *Holaster* and *Micraster*, chiefly in regard to apical system; ELBERT (103) pp. 128-140 and figg.—Origin of *Cidaridae*, Lambert's views criticised; TORNQUIST (305).

(B.) MORPHOLOGY.

i. **Anatomy**:—

a. **ECHINODERMA**.

1. **General accounts**:—popular; BRITISH MUSEUM (45): HERDMAN (149) pp. 55-58, fig. 7, 8: with special reference to structure and habits of littoral forms on East coast of Scotland; NEWBIGIN (221).
The text-book definition criticised; morphology discussed, Calycinal and Pentactaea theories rejected, Pelmatozoic theory restated and advocated; BATHER (18).
2. **Symmetries**:—Vacant.
3. **Homologies of Classes**:—Russo's observations as to origin of gonads, parietal canal, and water-vascular system in *Antedon* (see 292 Zool. Rec. 1900) upset the views of Jaekel as to the supposed parietal pore in *Cystidea* (130 Zool. Rec. 1899), which latter are based on observations of Seeliger on *Antedon* and Mortensen on *Cucumaria*, now contradicted by Russo; Russo (269).
4. **Skeletal tissue or Stereom**:—General account of its histology; DALLINGER (80).—Gives calcite reaction; MEIGEN (208).—Of *Echinus*, *Ophiura*, *Asterias*, and *Antedon*, description of physical characters of the calcite; KELLY (168) p. 469.
5. **Skeletal Anatomy**:—Vacant.
6. **Hydrocoel and associated cavities**:—Vacant.
7. **Coelom and other Body-cavities, and their Contents**:—Summary of relations of lacunar and periaermal systems; CUÉNOT (78) p. 235.
8. **Digestive System, Cuvierian organs**:—Vacant.
9. **Nervous Systems and sense-organs**:—Vacant.
10. **Mesodermal tissues (exc. skeletal)**:—Origin of mesoderm

in primitive Echinoderm; BATHER (18) p. 26: its relations to mesoglaea of *Coelentera* further discussed by RUSSO in translation, p. 17.

11. Axial organ or Ovoid gland:—General relations, see further under (d); CUÉNOT (78) p. 242.—Relations to primitive parietal canal and anterior coelom; BATHER (18) p. 26: RUSSO in translation, p. 22, criticises, and submits his own views.
12. Genital system:—Relation of gonads to coelomic pouches in primitive Echinoderm; BATHER (18) p. 25: extended statement and criticism by RUSSO in translation, p. 15.

b. *HOLOTHURIOIDEA*.

1. General Anatomy:—Elementary account; SHIPLEY & MACBRIDE (280) pp. 265-269: with special reference to N. American spp., terminology of systematists explained; CLARK (65).
2. Symmetries:—absence of currents permits development of secondary bilateral symmetry in *Elpidiidae*, as opposed to "Holothurians of the shallow seas, rolled about by the varying tides"; SHIPLEY (279) p. 243.—Orientation of gut-coils and respiratory trees in *Ludwigia*, compared with observations of ÖSTERGREN on *Dendrochirota*; REIFFEN (258) p. 612.
3. Homologies:—origin of *Hol.* and relations to other Classes; BATHER (18) p. 30: homologies with *Crin.* urged by RUSSO in translation, p. 31.
4. Stereom:—Absence of all in *Labidodemas egestosum*, *Paeleopatides megalopharynx*, *P. fusiformis*, *P. purpureo-punctatus*, *Peniagone ecalcareae*, and of spicules in *Holothuria mitis*, *Benthodytes salivorus*, *Thyone mirabilis*, *T. vitrea*, *Haplodactyla ecalcareae*; SLUITER (284).
5. Skeletal Anatomy:—Spicules, oesophageal ring, and pseudoral plates of *Ludwigia ocnoides* fully descr.; REIFFEN (258) pp. 601, 605, 606, pl. xlv.
6. Hydrocoel &c:—Watervascular system of *Ludwigia ocnoides*, with modification of podia into anal papillae, the elastic membrane (pp. 606, 608, pl. xlv), respiratory trees and their position (p. 612); REIFFEN (258).
7. Coelom and other Body-cavities:—Vacant.
8. Digestive System:—Alimentary canal and course of gut in *Ludwigia ocnoides*; REIFFEN (258) p. 610.—Gut almost uncoiled in *Enypniastes eximia* and *Chondrocloea recta*, caecum on first gut limb of *Paeleopatides fusiformis* and *P. purpureo-punctatus*, but no caecum found in *P. confundens*; SLUITER (284).
9. Nervous System and sense-organs:—pseudorals of *Ludwigia* considered as taste-organs; REIFFEN (258) p. 607.
10. Mesodermal tissues (exc. skeletal):—Musculature of *Ludwigia ocnoides* (p. 604), bloodvascular system (p. 613); REIFFEN (258).
11. Axial Organ:—Vacant.
12. Generative organs:—of *Ludwigia ocnoides*; REIFFEN (258) p. 613.—Gross and minute anat. of generative organs in *Mesothuria intestinalis*, which is ♂, there being a succession of alternate bunches of ♂ and ♀ tubules arising from the 'genital basis' and atrophying at its hinder end, the whole being supplied from the 'germinal cord' which runs alongside the efferent duct, see also *Ananus*, *Ocnus*, and *Holothuria*; THÉEL (298).

c. *ECHINOIDEA*.

1. General:—HAMANN (146) p. 967.—Elementary account anatomy, based chiefly on *Echinus*; SHIPLEY & MACBRIDE (28) pp. 253-265.
2. Symmetries:—Form and symmetry; HAMANN (146) p. 100.
- 3-4. Vacant.
5. Skeletal Anatomy:—Spines, pedicellariae, and associated structures; HAMANN (146) p. 1015.—Pedicellariae of *Schizaster fragilis*; KOEHLER (173) p. 99.—Spinulose nature of spines; *Cidaris florigemma*, supposed first descr. and figd.; SESTI (276); LAMBERT in Review says it characterizes the sp. in genus.
- 6-7. Vacant.
8. Digestive System:—Accessory intestinal siphon in *Schizaster fragilis*; KOEHLER (173) p. 100.—Excretory cells in saccus intestinal curve of *Strongylocentrotus* and *Echinus*; CUKNOT (78) pp. 250, 252.
9. Nervous System:—Nerves, sensory and poison organs, associated with spines and pedicellariae; HAMANN (146) p. 1015.—Traces of eyes (?) in ocular plates of *Ech.*; PFEFFER (242) p. 34.
10. Mesodermal Tissues (exc. skeletal):—Integument and associated structures; HAMANN (146) p. 1011.
- 11-12. Vacant.

d. *ASTEROIDEA*.

1. General:—Elementary account of anatomy; based on *Asterias* and *Echinaster*, and serving as type of Echinoderm structure; SHIPLEY & MACBRIDE (28) pp. 236-248; of *Asterias rubens*; MASTERMAN (203) pp. 156-161, 5 text-figs.—Figure of dissected *A. rubens*; BRITISH MUSEUM (45) p. 108.
2. Symmetries:—Origin of torsion in *Ast.* connected with *Édrioasteroidea*; BATHER (18) p. 31: criticised by RUSSO in translation, p. 34.
- 3-4. Vacant.
5. Skeleton:—Mouth-parts of *Ast.* and *Oph.* not homologous; see II, B, i, e, 5; ZUR STRASSEN (338).
6. Vacant.
7. Coelom and body-cavities; contents:—Lacunar system (p. 235), intestinal absorbent canals, their relations to absorbent coelom (p. 237), histology of lacunae (p. 239), pseudohaemal or perihæmal system separate from coelom but united to intrategumentary system, new term 'subneural sinus' (p. 244) amoebocytes multiply by fission (p. 234); CUKNOT (78).
8. Digestive system:—Excretory cells in radial caeca; CUKNOT (78) p. 248.
9. Nervous system:—Ocellus of *Asterias glacialis* after Pfeffer and photir-cells of *Astrogonium*; BEER (24) p. 69, fig. 30.—Eyes of spp. of *Asterias*, *Echinaster*, *Astrogonium*, *Astropecten*, *Atropsis*, *Pteraster*, *Solaster*, *Asterina*, *Patmipes*, *Luidia*, histology and history of opinion; PFEFFER (242).
10. Mesodermal tissues (exc. skeletal):—Intra-tegumentary lacunar system and its connection with the perihæmal; CUKNOT (78) p. 244.
11. Axial organ or Ovoid gland:—Relations and histology amoebocytic contents, no connection with gonads, but always associated with stone-canal, should be called "le rein collatéral ou tube aquifère, ou encore le rein lymphoïde"; CUKNOT (78) p. 239.
12. Vacant.

e. *OPHIUROIDEA*.

1. General:—Elementary account of anatomy; SHIPLEY & MACBRIDE (280) pp. 248–253.
2. Vacant.
3. Homology:—Mouth-parts of *Oph.* and *Ast.* not homologous, see under 5; ZUR STRASSEN (338).
4. Vacant.
5. Skeletal system:—Mouth-parts; HAMANN (146) p. 897: derived from brachial elements, Ludwig's view modified, chiefly from evidence of *Amphiura squamata*, *Astrophiiura*, *Ophioglypha*, in so far as parts are formed not from 1st and 2nd segments, but from 2nd and 3rd, and peristomalia are independent formation; therefore *Oph.* mouth-parts not strictly homologous with those of *Ast.*; ZUR STRASSEN (338).
- 6–11. Vacant.
12. Gonads:—Structure of spermatozoa; HAMANN (146) p. 897.

f. *CRINOIDEA*.

1. General:—Elementary account of anatomy, based on *Antedon*; SHIPLEY & MACBRIDE (280) pp. 269–273.
- 2, 3, 4. Vacant.
5. Skeleton:—Detailed account of anat. of *Uintacr. socialis*, especially arm-length (p. 15), syzygies (p. 18), absence of covering-plates (p. 20), pinnules (p. 20), base with or without IBB, with discussion as to centrale and general principles of composition of base (p. 22), tegmen of exocyclic structure (p. 38), showing anal tube (p. 40), excentric mouth and open subvective grooves (p. 42); SPRINGER (290).
Tegmen of fossil and recent *Flexibilia* and *Inadunata* discussed in relation to *Uintacr.*, esp. that of *Actinometra*; SPRINGER (290) p. 43.—Coiled anal tube in *Scaphiocr.*; ROWLEY in GREENE (141) p. 61.
Arms develop from uniserial to biserial, nothing new; GRABAU (134).
6. Hydrocoel &c.:—vide sub II, B, i, a, 3; Russo (269).
7. Vacant.
8. Digestive System:—Exocyclic nature of *Uintacr.* see 5.
- 9–11. Vacant.
12. Generative System:—vide sub II, B, i, a, 3; Russo (269).

g. *CYSTIDEA*.

- 1–4. Vacant.
5. Skeleton:—Thecal plates and subvective grooves of *Agelacrinidae*, variations and systematic value; CLARKE (69) pp. 188–192.—Skeletal anatomy of the *Carpoidea*, a new Class [= *Anomalocystida* sens. lat.]; JAEKEL (162).
6. Hydrocoel &c.:—Madrepore not detected “in any agelacrinite”; CLARKE (69) p. 189.
7. Vacant.
8. Digestive System:—Position of mouth and anus in *Carpoidea*, relations of foodgrooves; JAEKEL (162) p. 663.
- 9–11. Vacant.
12. Generative System:—Gonopore, vide sub II, B, i, a, 3; Russo (269).—Plated swellings attached to stem of *Rhipidocystis*, supposed to contain gonads; JAEKEL (162) p. 665.

h. *BLASTOIDEA*.

1. General account: with reference to figures, for museum purposes; BATHER (16).
- 2–12. Vacant.

ii. Variation:—

- a. In form:—Giant *Holothuria edulis*, *H. pervicax*, *H. monocaria*, *Chondrocloea reticulata*; SLUITER (284).—Of *Epiaster whitei*; CRAIG (77) p. 154.—Of *Pentaceros reticulatus* (p. 237), *Echinometra subangularis* (p. 253); CLARK (66).—In size of rays *Asterias hexactis* CLARK (63) p. 329.

Deformations due to outer conditions and to *Myzostomids* in *Cyrtocr.*, *Scleroer.* and *Eugeniocr.*; REMÉŠ (259).

- b. In form and surface characters:—Minor variations in a large number of *Hol.* from Indian Archipelago (see generic list, III, A, iii) esp. *Holothuria argus* spicules, *H. kurti* ditto, *Labiododemas semperianum* ditto, *Muelleria maculata* warts, *Mesothuria multipes* spicules, *M. lactea* ditto, *Pannychia moseleyi*, *Cucumaria longipeda*, *Colochirus challengerii*, *Phyllophorus brocki*, and *Chirodota rigida*; SLUITER (284).—In number and position of anal plates, in number of genital pores, and in position of oculars in *Arbacia punctulata*; OSBORN (77).—In arrangement of pore-pairs, *Enallaster texanus*; CRAIG (77) p. 151.—In *Strongylocentrotus droebachiensis*, *Asterias gunneri*, *Cribrella oculata*, *Solaster papposus*; RANKIN (252).—In dorsal arm-scutes of *Ophioglypha robusta*; KOEHLER (173) p. 100.

- c. In colour:—Of various spp., see list under III, A, iv, esp. *Strongylocentrotus* and *Ophiopholis*; CLARK (63).—Of various *Berindian Ast.*, *Oph.* and *Hol.*, see genera under III, A, ii; CLARK (64).—Various *Echinoderms* of Porto Rico, see genera under III, A, ii; CLARK (66).

Colour in life: of *Ech.* and *Oph.* dredged by 'Belgica,' see list of genera II, A, vi; KOEHLER (172): of *Antedon quadrata*, *Ophioglypha robusta*, *Asterias gunneri*, and *Cucumaria frondosa*; RANKIN (252).—Colour variations and colour in life noted in a large number of *Hol.* from Indian Archipelago (see generic list III, A, iii), esp. *Holothuria pervicax*, *H. scabra*, melanitic *H. fusco-rubra*, *Muelleria maculata*, *Thyone castanea*, albino *Colochirus quadrangularis*, with figures coloured from life of *Benthodytes sibogae*, *Cucumaria tricolor*, *Thyone mirabilis*, *Chondrocloea virgata*, *Holothuria submersa*, *Stichopus ananas*, *Ilyodaemon maculatus*, *Bathyploetes phlegmaticus*, *B. rubicundus*, *Colochirus gazellae*, *C. luteus*, *Lactmogone enisus*, *Scotodeima protectum*, *Phyllophorus inflatus*, *Synallactes eticulatus*, *Molpadia demissa*, *Protankyra challengerii*; SLUITER (284).—Colour of recent *Ech.*, general; HAMANN (146) p. 1010. Pigments, see II, C, v.

- d. Meristic variation:—

1. Variation from pentamerous symmetry:—A complete radius and interradius added in right dorsal interradius of *Ludwigia ocnoides*; REIFFEN (258) p. 615.—Almost complete suppression of pores and partial suppression of plates in an ambulacrum of *Echinarachnius*; TOWER (307).—*Asterias rubens*, 8-rayed; GIARD (131) p. 289, f. 43 is new: 4 rays, 1 bifurcated; CHEVREL (59).—6- and 4-rayed *Pentaceros reticulatus*; CLARK (66).—Number of rays of *Solaster endeca decemradiata*; CLARK (63) p. 325: of *Asterias tenuispina*, ? varies according to loc.; CLARK (64) p. 339.—In *Oph.* generally; HAMANN (146) p. 894.—6-rayed *Ophiactis muelleri* and *Ophiocoma pumila*; CLARK (64) p. 340.—In number of arms in *Uinctr.*, viz 9, 11 & 12; SPRINGER (290) p. 19.

2. Reduplication or absence of parts:—Multiple madreporites in one or more interradial, with or without multiplicity of stone-canals in *Asterias vulgaris*, perhaps correlated with multiplication by fission; DAVENPORT (83).

Variation in distribution of syzygies (p. 18), in composition

of base (p. 24), in number and arrangement of the various series of supplementary plates (p. 70); SPRINGER (290).

- e. Abnormalities:—In position of genital plates in *Salenia* (? *Acrosalenia*); SIMIONESCU (281) p. 22.—Enantiomorphs observed in development of *Cribrella*, right hydrocoele forms ambulacral system and so on; MASTERMAN (202).

iii. **Secondary Sexual Characters:**—

- a. Differences of Form or Structure:—In *Oph.*; HAMANN (146) p. 892.—None such discoverable in *Asterius forbesi* and *A. vulgaris*; MEAD (207) p. 203.
b. Differences of Colour:—?In *Astrophyton*; BELL (25).
c. Protection of Young:—Literature of; ALCOCK (3) p. 49.—In *Cucumaria*, *Thyone*, and *Thyonopsolus*; CLARK (62).—In *Cucumaria*, see III, A; THÉEL (297).—In *Oph.*; HAMANN (146) p. 891.

(C.) PHYSIOLOGY.

- i. **General:**—Vacant.
ii. **Circulation:**—Thrombocyte of *Echinus miliaris*; DEKHUYZEN (86) p. 539, f. 7.—Action of hydraulic system in *Ast.*; SHIPLEY & MACBRIDE (280) pp. 242–244.—Physiology of the cavities of irrigation in *Ast.*, relations to water-vascular system; CUÉNOT (78) p. 246.—Ditto in *Oph.*; HAMANN (146) p. 887.
iii. **Respiration:**—In *Ech.*; SHIPLEY & MACBRIDE (280) p. 262.—In *Oph.*; HAMANN (146) p. 888.—Osmotic pressure in fluid of body-cavity in *Astropecten*, *Asterias*, *Holothuria*; BOTTAZZI (38) p. 63.
iv. **Alimentation and Digestion:**—In *Ast.*; SHIPLEY & MACBRIDE (280) pp. 240, 241, text-fig.—In *Oph.*; HAMANN (146) p. 889.—Intestinal absorption in *Ast.* and relations to the circulation; CUÉNOT (78) p. 237.—Digestion, transference to body fluids, and metabolism in *Holothuria*, *Sphaerechinus*, and *Astropecten*; COHNHEIM (70).
v. **Excretion and its Products:**—Actual excretion by means of special cells: “néphrocytes à indigo” in the radial caeca of *Ast.* and second intestinal curve of *Ech.*, and “néphrocytes à carminate” on epithelium of coelomic spaces, water-vascular and perihæmal systems, Tiedemann’s bodies, ovoid gland, also free amoebocytes; this excretion is in addition to the known eliminating phagocytosis; CUÉNOT (78) p. 248.—Excretion by osmosis and granules in *Oph.*; HAMANN (146) p. 889.
Albuminous and nitrogenous excretions of *Holothuria*; COHNHEIM (70).—Orange pigment of *Uraster rubens* analysed and called ‘urastérine’; GRIFFITHS & WARREN (144).
vi. **Sensation:**—Central nervous system, summary of researches; BABAK (12) p. 96.—Functions of nervous system in *Oph.*; HAMANN (146) p. 882.—Experiments on *Ast.*, *Oph.*, *Hol.*, righting movements, response to stimulus, negative geotropism; LOEB (188) pp. 60–71.—Reflex of *Ech.* to light and shadow, results of Uexküll discussed, *Sphaerechinus*, *Arbacia*, and *Diadematidae* contrasted (p. 26), are there photo-receptive cells in *Diadematidae*? (p. 42); BEER (24).
vii. **Miscellanea and Experimental Physiology:**—Functions of skin, including spines, of *Oph.*; HAMANN (146) p. 882.—Replacement of gonads and atrophy of old ones in *Mesothuria*, the eggs being destroyed by phagocytes with vacuoles, and the genital basis by phagocytes with spheres; THÉEL (298).

Action of pilocarpine and atropine on embryos of *Asterias* and *Arbacia*; MATHEWS (206).

(D.) BIONOMICS.

- i. **General Accounts:**—popular; BRITISH MUSEUM (45) pp. 10-111.—Account richly interspersed with physiological and ethological observations; SHIPLEY & MACBRIDE (280).—"An elementary account of animal ecology" [i.e. oecology, = ethology or bionomics] contains scattered notes on Echinoderms; JORDAN (166) pp. 70, 96, 258, 303. Habits of adult, young, and larvae of *Asterias forbesi* and *A. vulgaris* MEAD (207).
- ii. **Special habits:**—Of littoral *Echinoderma* of E. coast of Scotland popular; NEWBIGIN (221).—Boring sea-urchins; JORDAN (166) p. 33 text-fig.—Phosphorescence in *Oph.*; HAMANN (146) p. 893.
- iii. **Habitat:**—(a) Nature of bottom of *Hol.*, *Ech.*, *Ast.*, *Oph.*, *Crin.* off coast of Gerona, Spain; PRUVOT (248) pp. 38-41.—Of Bermuda Echinoderms; CLARK (64): of various Echinoderms of Porto Rico CLARK (66): see lists of genera under III, A, ii.—Habitat, especially as regards depth, of Echinoderms of Angoumian (see III, B, i b, 1) in various countries; ELBERT (103) pp. 140-166.—(b) *Holothurioides*.—N. American, see lists under III, A, ii & iv; CLARK (65).—Large number from Indian Archipelago (see generic list III, A, iii), esp. *Holothuria squamifera*, *Laetmogone ennius* on coral sand, *Thyone vitrea* sheath of globigerina tests, *Phyllophorus achemilis* accidentally in plankton; SLUITER (284).—(d) *Asterioides*.—*Asteria* sp. brackish water of Shark R., N.J.; NELSON (220) p. 255.—(e) *Ophiuroidea*.—in general; HAMANN (146) p. 890.—(f) *Crinoidea*.—long stalks of deep-sea *Crin.*, perhaps to raise them above the ever-growing deposit of *Globigerina* ooze; SHIPLEY (279) p. 244.—Gregarious habit of *Urtica socialis*, its local distrib., probably pelagic, swarming condition when killed; SPRINGER (290) p. 9.—(g) *Edrioasteroidea*.—mode of attachment in *Agelacriniidae*; CLARKE (69) p. 192.
- iv. **Feeding:**—(b) Feeding and food of *Holothuria*; COHNHEIM (7) esp. p. 22.—*Cyclolepis agassizi* abundant in gut of supposed Cretaceous *Holothuria*; HINTERLECHNER (153) p. 473.—(c) *Echinostrophomolae* stored up and ate boiled rice; ALCOCK (3) p. 75.—(d) Of *Ast.* SHIPLEY & MACBRIDE (280) pp. 240, 241, text-fig.—Food and methods of feeding of *Asterias*; MEAD (207) p. 206.—*A. vulgaris* as enemy of oyster, mode of attack, *A. sp.* feeds on black mud snails; NELSON (220) p. 255.—Feeding of *Asteracanthion*, chiefly a scavenger; BUECKEL (48) p. 26: feeding on mussels; FAUVEL (108) p. 193: feeds on dead gar-pike in aquarium (p. 92), but in nature on shell-fish, mode of feeding discussed (p. 108), as carrion-feeder and scavenger (p. 109) RAUSCHENPLAT (254).—(e) Of *Oph.*; HAMANN (146) p. 889.—Analysis of food of *Ophioglypha albida*; RAUSCHENPLAT (254) p. 149.
- v. **Defence and Protection:**—
 - a. **Active:**—Cuvierian organs of *Holothuria capta*; CLARK (64) p. 342.
 - b. **Concealment:**—Vacant.
 - c. **Protective Coloration:** in *Synapta vivipara*, according to seaweed on which it dwells; CLARK (64) p. 341.—In *Oph.*; HAMANN (146) p. 893.—Conspicuous colour of many Echinoderms not protective, e.g. *Hippasterias*, *Solaster papposus*, *S. endeca*, *Cribrella sanguinolenta*, *Ophiura lacertosa*, *Strongylocentrotus lividus*; MACINTOSH (197) p. 225.—Colour in deep-sea Echinoderms not meaning less because visible by phosphorescent light; NUTTING (227) pp. 848-850, and (228) pp. 133, 135.—Red colour of Echinoderms in deep sea appears same as black, and is therefore protective; SEELIGER

(275) p. 16 and pl.—Colour of deep-sea *Hol.* and *Crin.*, though bright, uniform; SHIPLEY (279) p. 243. For Colour see also II, B, ii, c; iii, b: c, v.

d. Other protective Adaptations:—Vacant.

- vi. **Locomotion**:—(a) see also LOEB under II, c, vi; LOEB (188).—(d) Mechanism of, in *Ast.*; SHIPLEY & MACBRIDE (280) pp. 242–244.—*Asterias*; MEAD (207) p. 204.—(e) Movement and locomotion in *Oph.*; HAMANN (146) p. 884.
- vii. **Autotomy and Regeneration**:—Regeneration compared with development of half-blastulae; MORGAN (211) pp. 953, 962, and (213) pp. 18, 228 et seq.—In Echinoderms generally (pp. 105, 144), also in *Hol.* (pp. 105, 145, 154), in *Ast.* (pp. 102, 153, 214), esp. *Asterias vulgaris* and *Linckia multiformis*, in *Oph.* (pp. 145, 153), in embryonic stages (pp. 18, 68, 228); MORGAN (213).—Autotomy of *Ophioderma* and *Luidia* consequent on removal from water, process descr.: autotomy of both whole and eviscerated *Antedon*: reaction to fresh water of *Echinus* and *Sphaerechinus* which throw off pedicellariae, not so *Arbacia*; RIGGENBACH (261).—Regeneration in Echinoderms generally, esp. *Hol.*; MORGAN (210) p. 244.—In *Colochirus*, *Stichopus*, *Synapta*, *Linckia* (fig.), *Asterias* (fig.), popular; ENTZ (104) p. 10.—Fission in *Ast.* perhaps connected with multiple madreporites; DAVENPORT (83).—Experiments on power of regeneration of artificially divided *Asterias*; single arms do not regenerate, a portion of disc is required; possible for a single starfish to produce two after division, but exceedingly improbable that it could do so in natural surroundings; MEAD (207) p. 221.—Regeneration of 1, 2, 3, 4, and 5 (?) arms in *Asterias vulgaris*; NELSON (220) p. 255.—Regeneration in *A. vulgaris*, King's experiments discussed; MORGAN (210), p. 242.—Supposed regeneration of disc and rays from a single ray of *Linckia guildingii*; CLARK (66).—Ditto in *Linckia multiformis*, Sarasin's views criticised, a new starfish probably not formed from single arm; MORGAN (210) p. 242.—Regeneration of eye of *Astropecten* and *Echinaster*; PFEFFER (242) pp. 546, 547.—General account of autotomy and regeneration in *Oph.*; HAMANN (146) p. 877.—In *Amphiura* sp., growth of all systems descr. and compared with embryonic development; DAWYDOFF (84).—Experimental study of regeneration in *Antedon*, also transplantation of disc; PRZIBRAM (249 & 250) pp. 334–340, 344.
- viii. **Parasites and Commensals**:—(a) Literature of Echinoderm commensals; ALCOCK (3) p. 44.—(b) *Hol.* hosts of *Sporozoa*; LABBÉ (176) p. 134.—*Endocolar* a gastropod in *Myriotrochus* sp. nondescr.; ÖSTERGREN (231): KOLTHOFF (174) p. 210.—*Fierasfer homei* in *Stichopus*, and *Pinnotheres* in cloaca of *Mulleria*; ALCOCK (3) p. 44.—(c) *Ech.* hosts of *Sporozoa*; LABBÉ (176) p. 133.—Parasites of *Echinus esculentus*, viz. *Syndesmus echinorum*, *Oncholaimus echini*; SHIPLEY (278).—(d) Polychaete worm on interradial of *Dictyaster xenophilus*; ALCOCK (3) p. 44.—(e) Parasites of *Oph.*; HAMANN (146) p. 892.—(f) Polychaete worm and Galatheid crustacean with *Antedon* sp., and coloured like it; ALCOCK (3) p. 44.—*Myzostomum gigas* on *Antedon eschrichti*; KOLTHOFF (174) p. 206.—*Myzostomida* on Antarctic *Crin.*, “it is interesting to note that the ancient form *Hyocrinus* has a special genus of parasite unknown on other Crinoids...also...that von Graff regards this genus ‘as undoubtedly the lowest form of the Myzostomida’.” [genus referred to is *Stelechopus*; but this was also found on *Bathycr.*, moreover *Hyocr.* has no peculiar right to the epithet ‘ancient’]; SHIPLEY (279) p. 254.—*Myzostomidas* [assumed]

in various fossil *Eugeniocrinidae*; REMÉŠ (259).—*Aulopora amplum* always surrounding columnals of *Platycr.* in Upper Burlington Limest.; ROWLEY (267) p. 353, pl.

- ix. **Echinoderms as Food:**—Sea-egg and trepang fishery in W. Indies, see II, E, ii; DUERDEN (99).—*Asteracanthion rubens* supposed poisonous because dogs fed on them were very sick and some died; MARSHALL (225, Zool. Rec. 1900) quoted by RAUSCHENPLAT (254) p. 91.—Enemies of *Asterias*; MEAD (207) p. 221.—*Ophioglypha* as food for fish; RAUSCHENPLAT (254) p. 91.
- x. **Echinoderms as Geological Agents:**—*Hol.* at Minikini swallow and triturate sand "the small particles being subsequently carried out of the lagoon in a state of suspension"; GARDINER (125).—Fragments of *Ech.* and *Oph.* in bottom deposits near Greenland and Iceland; BOEGGILD (33) p. 74.—Destruction of Echinoderm remains in reef-limestones by dolomitisation; HUME (157) p. 39.—Argillaceous limestone composed largely of spines of *Ech.*, Oligocene, Georgia; VAUGHAN (309) p. 874.—Scutella limestone formed of *Aspidocr.* and columnals of other forms at Schoharie, N.Y.; STEVENSON (291) p. 372.—Bajocian rocks formed by *Crin.*; BLEICHER in PETITCLERC (240) p. 243.—Echinoderm breccia with *Pentacr. pailonoti*; STRUEHN (295).—*Traumatocrinus* limestone; KRAFFT (175) p. 208.—Accumulations of *Crin.* fragments in connection with reef formations in Silurian rocks; SABLE (270) pp. 289, 298.

(E.) MISCELLANEOUS.

i. Research and Instruction:—

- a. **Preservation:**—Collection, fixation, and preservation of *Echinoderma*; GRAVIER (140) pp. 20–26, and 86–88.—Capture of Echinoderms by the dabo-line; IJIMA (160) pp. 20, 26.—Preserving reagents for Echinoderm larvae; MORTENSEN (214) p. 5.—Glycerine preparations in extended state of small Echinoderms; SCALES (271).—Formol not good for most *Hol.*; SLEITER (284) p. 16.
- b. **Methods of research:**—Microscopic methods in study of Echinoderms; DALLINGER (80).—Test for Aragonite and Calcite; MEIGEN (208).
- c. **Museum Exhibits and Collections:**—Guide to exhibited series of *Echinoderma*; BRITISH MUSEUM (45).—British Museum (Nat. Hist.) acquires G. H. Morton Coll. Carboniferous Limest. fossils of N. Wales; MORTON (218) p. 49.—Collection of Echinoderms; NORMAN (226) [this also in above museum].—Lists of historical specimens of *Echinoderma* in Museum of Practical Geology, London: Eocene; ALLEN (5) p. 199: Pliocene; ALLEN (6) p. 182: Devonian; ALLEN (7) p. 197.—Specimens of *Urtocr. socialis* presented to Mus. Comp. Zool., Harvard, U. S. Nat. Mus., Brit. Mus., and Berlin Mus. f. Naturkunde; SPRINGER (290) p. 88.—Musée d'Histoire naturelle, Paris, Jurassic Echinoderms, esp. Kimmeridgian *Crin.* and *Ech.* (p. 60), Eocene *Hol.* and *Ech.* (p. 61); THEVENIN (299).—List of historical specimens of Lower Carboniferous *Crin.* (p. 362), *Blast.* (pp. 370, 482), and *Ech.* (p. 370), Miocene *Ech.* (p. 442), Pleistocene *Ech.* (p. 462), in Amer. Mus. Nat. Hist., with notes on nomenclature under *Agaricocr.*, *Gilbertocr.*, *Poteriocr.*, *Steganoocr.*; WHITFIELD & HOVEY (321).—Devonian *Crin.*, Triassic *Crin.*, *Ech.*, *Op.* in collection of Erlangen University; GRASSMUELLER (137).

Exhibit of *Micraster* to illustrate ROWE (202) Zool. Rec. 1899; GEIKIE (128) p. 167.—Suggestions for exhibition of *Echinoderms* in a public museum, detailed labels, diagrams, &c. for *Blastoides*; BATHER (16).

- d. **Instruction**:—Text-book; MASTERMAN (203): SHIPLEY & MAC-BRIDE (280): POČTA (244): JORDAN (166): NEWBIGIN (221).
- ii. **Economics**:—Suggested trepang fishery in West Indies (p. 134),* the sea-egg industry of Barbados, annual value £4000, recent decrease in numbers of the *Ech.* species fished, viz. *Hipponoë esculenta* and *Echinometra subangularis*, proposed remedies (pp. 125, 134, 140, 144, 156); DUERDEN (99).—Methods of destroying starfish for protection of oyster and clam beds, suggested carting away of seaweed early in July; MEAD (207) pp. 215, 224.
- iii. **Bibliography**:—Appendix to Bibliography of *Oph.* (p. 899), bibliography of recent *Ech.* (p. 971); HAMANN (146).—Review of recent work; LUDWIG (195).—Literature of Regeneration in Echinoderms; DAWYDOFF (84) p. 232.—*Ech.* figd. in de Rozière "Descr. de l'Égypte Hist. Nat., Mineralogie" [1812?] and Cailliaud "Voyage à Meroë" [1827] determined, see under *Clypeaster*, *Cassidulus*, *Conoclypeus*, *Echinolampas*, *Pericormus*; FOURTAU (118).—List of scientific writings: by himself, with abstracts and comments, those relating to Echinoderms are on pp. 41, 46, 121, 123, 124, 136, 140 (figg. 23, 24), 171, 187, 210, 253, 269, 273, 275, 287, 288 (fig. 43, new, & fig. 44); GIARD (131): by W. P. Sladen; CASH (56): by E. Billings; AMI (9): ditto, complete and annotated; WALKER (316).
- iv. **Historical, Popular notions, &c.**:—History of Echinoderm palaeontology, with critical appreciations, as interpreted by M. M. OGILVIE-GORDON; ZITTEL (337) pp. 129, 130, 392-396.—Eighteenth century dredgings of Echinoderms from deep-sea; SEELIGER (275) p. 30.—History of research on Echinoderms in Austria; GRAFF (136).—History of opinion and scientific discovery concerning recent *Ech.*; HAMANN (146) p. 1002.
W. H. BARRIS' work on American Palaeozoic *Crin.*; PRESTON (246) p. 360.—Obituary notices: Lütken (p. 45); Sladen (p. 48); LINNEAN SOCIETY (187): CASH (56).
Diadema setosum called 'Abou Chokah' by Red Sea fishermen; FOURTAU (117) p. 540.—"Chelloul" (see Zool. Rec. 1898, II, E, iv) is corruption of English "shell" in Arabic plural form; BLANCKENHORN (30) p. 90.—*Metacr. rotundus* called 'Bird's leg' by Misaki fishermen; IJIMA (160) p. 26.
Fossil *Ech.* "in grosser Zahl als Devotionalien an Gräbern von Heiligen"; SCHAFER (274) p. 54.

(F.) AUXOLOGY.

- i. **General Principles**:—Recapitulation in *Antedon* and Palaeozoic *Ech.*; SMITH (288) p. 423.
- ii. **General Accounts**:—Vacant.
- iii. **Formation of Gonads**:—Oogenesis and spermatogenesis in *Mesothuria*, development of genital basis and genital tubules, ♂ and ♀ in successive bundles, from the germinal cord; THÉEL (298).—Maturation of ovum in *Strongylocentrotus* and *Asterias*; DELAGE (90).
- iv. **Oviposition, Fertilisation, and Segmentation**:—Maturity of *Hol.* delayed by cold; RAWITZ (256) p. 455.—Breeding period of *Asterias* in Narragansett Bay; MEAD (207) p. 209.—Pairing of *Ast.* and *Oph.*, in particular *Ophiocampsis pellicula*; ALOOCK (3) p. 48.—? Sexual congress in *Astrophyton*; BELL (25).
Fertilisation and its effects: in *Strongylocentrotus* and *Asterias*; DELAGE (90): different spp. react differently, e.g. *Echinus* and *Arbacia*; DUNGERN (100).—Autofecundation by a ♀ *Sphaerechinus granularis*;

cases of hermaphroditism in Echinoderms discussed; VIGUIER (312) p. 99.—Spermatozoa of *Ech.* attracted neither by chemical stimuli in general nor by a special substance excreted by ova; BULLER (49).

Ova of *Toxopneustes* and *Arbacia*; WILSON (327).—Constitution of ovum *Holothuria tubulosa*; RAWITZ (256) p. 456.—Maturation of ovum in *Asterias*, a critical stage when the membrane of the germinal vesicle disappears and the nuclear sap diffuses in the cytoplasm DELAGE (88).

Centrosomes and Centrioles in segmentation of ovum of *Echinus* original observations, and criticism of others; BOVERI (40) pp. 29–62.—Structure of ovum of *Strongylocentrotus*, and discussion of its polarity on basis of experiment; BOVERI (41).—Polarity of oocyte ovum, and segmenting ovum of *Strongylocentrotus*, readily recognized, compared with Selenka's observations on *Toxopneustes* and Morgan's on *Arbacia*; BOVERI (43).—Chromosomes not permanent, but number is self-regulated; DELAGE (87).—Importance of nuclear substance in segmentation; RAWITZ (256) p. 469.

Solid morula in *Cribrella*; MASTERMAN (202).

v. Larval Stages:—

- a. General account; DALLINGER (80).—Detailed account of forms and gross anatomy, with special reference to larvae found N. of 50° N. lat., so-called n. sp. of *Ophiopluteus*; MORTENSEN (214).—Larvae, esp. *Auricularia* and *Ophiopluteus*, in Plankton of G. of Trieste, March 1899 to July 1900, producing red colour of plankton; CORI & STEUER (72) p. 112.
- b. Larvae of *Elasipoda*, probably *Elpidiinae*, descr.; HÉROUARD (510) p. xlv.
- c. Impossibility of distribution of larvae by marine currents; THÉEL (297) p. 255.—Developmental origin of processes of *Ech. pluteus* due to an internal stimulus; HERBST (148) pp. 36–38.
- d. Habits of larvae of *Asterias*, locomotion and migration by tides or currents; MEAD (207) p. 212.—Development of *Cribrella* [certain statements are corrected in the final work, 1902]; MASTERMAN (202).

vi. Organogeny:—

- a, b. *Echinoderma* and *Holothurioidea*:—Vacant.
- c. *Echinoidea*:—5. Jaw-apparatus of *Echinus*; MACBRIDE (196).
- d. *Asteroidea*:—Vacant.
- e. *Ophiuroidea*:—
 1. Natural organogeny of *Oph.* compared with regeneration of organs in *Amphiura*; DAWYDOFF (84).
 5. Skeleton; HAMANN (146) p. 873 et seq.—Development of mouth parts in *Amphiura*; ZUR STRASSEN (338).
 6. Water-vascular system; HAMANN (146) p. 875.
 7. Coelom and axial sinus (p. 876), schizocoels in mesenchyme (p. 874); HAMANN (146).
 11. Axial organ; HAMANN (146) p. 874.
 12. Genital system and gonads; HAMANN (146) p. 874.
- f. *Crinoidea*:—
 12. Vide sub II, B, i, a, 3; RUSSO (269).

vii. Post-larval Growth-stages:—

- b. *Holothurioidea*:—Growth-changes in distrib. of podia in *Loliodemas semperianum*, growth of spicules in *Stichopus eurygatus*, *Cucumaria nocturna*, various age-differences in *Laetmogone violacea*, *Cucumaria expensis*, *Phyllophorus schmeltzi*, *Aukyoaderma danielsenii*; SLUITER (284).—Podia increase and extend with growth so

- that a single species passes successively through the stages characteristic of *Ocnus*, *Cucumaria*, and *Semperia*, the first and last being therefore synonyms of *Cucumaria*; HÉROUARD (150) p. xlv.—Young *Holothuria rathbuni*; CLARK (66) p. 259.
- c. *Echinoidea*:—Changes in apical system of *Acropeltis* from specimens 1.5 mm. diam. to adult 13 mm. diam.; SÉGUIN (277).—Brephic *Athenosoma hystrix*, podia in single rows; CLARK (66) p. 253.—Neanic *Porocidaris incerta*, all stages *Sterechinus antarcticus*; KOEHLER (172) pp. 7, 8.
 - d. *Asterioidea*:—Age-differences in *Astropecten duplicatus* and *A. antillensis*; CLARK (66) p. 236.—Habits of young *Asterias* (p. 213), rate of growth up to sexual maturity (p. 215); MEAD (207).
 - e. *Ophiuroidea*:—Brephic *Ophiopyrgus australis*; KOEHLER (172) p. 24.—Meeting of lateral arm-scutes in median line varies with age in *Ophioglypha robusta*; RANKIN (252) p. 177.
 - f. *Crinoidea*:—Young of *Uintacr. socialis*, with detailed account of growth in the sp.; SPRINGER (290) pp. 60–86.
 - g. *Edrioasteroidea*:—Course of subventive grooves in neanic as compared with adult *Agelacr. alleganius*, *A. buttsi*, *A. hamiltonensis*; CLARKE (69) pp. 190, 195.
- viii. **Developmental mechanics and Experimental Embryology**:—Discussion of polarity in *Ech.* ovum, with special reference to work of Driesch, based on experiments with *Strongylocentrotus*; BOVERI (41) (see further under iv).—Development of isolated blastomeres of *Echinus*, *Sphaerechinus*, and *Toxopneustes*, comparison with regeneration in adult; MORGAN (211) p. 953, and (213) pp. 18, 228, et seq.—Development of partial embryos of *Sphaerechinus*, proportional number of cells (pp. 419, 423), the same for *Toxopneustes* (p. 429); MORGAN (212).—Effect of various ions in producing separation of cleavage cells to form dwarf embryos, or fusion of ova to form giant embryos, in *Arbacia*; LOEB (189) p. 445.
- Hybrid larvae,—general discussion with reference to regeneration; MORGAN (213) p. 68.—*Strongylocentrotus lividus* ♂ × *Holothuria tubulosa* ♀ (p. 455), *Sphaerechinus granularis* ♂ × *Holothuria tubulosa* ♀, with or without aération (p. 457); RAWITZ (256).—Possibility of crossing Echinoderms and Annelids; LOEB (189) p. 451.—*Asterias* × *Arbacia* as described by Morgan, development really parthenogenetic; MATHEWS (206).
- The salts necessary for development of *Ech.* larvae, substitution of sulphate ion by sulphite, thiosulphate, ethylsulphate, selenate, tellurate, of chlorine by bromine and iodine, of potassium by sodium, lithium, rubidium, and caesium, of calcium by magnesium, strontium, barium; development to any extent only possible when the substituted ion is a close chemical ally, and even then it is obstructed; species investigated were chiefly *Sphaerechinus granularis* and *Echinus microtuberculatus*; HERBST (147).—Effects of ether and pressure on segmenting ova of *Toxopneustes* and *Arbacia*; WILSON (323 & 327).
- Development of enucleated ova of *Echinus microtuberculatus*, and effect on ova of chemical constituents of sperm in *Arbacia* and *Sphaerechinus*; WINKLER (328).—Experiments of PIERI (190) Zool. Rec. 1899 and WINKLER (358) Zool. Rec. 1900, on 'spermase' tested in *Arbacia* and *Strongylocentrotus* with negative results; GIES (133).—Attempt to induce development of *Arbacia* ova by addition of enzymes to sea-water; LOEB (189) p. 456.
- Artificial parthenogenesis:—in *Asterias*; LOEB et al. (190).—"Ephebogenesis," i.e. production of offspring without the female element, attempt to prove from unripe *Holothuria tubulosa* ♀ × ♂ of same sp. and × ♂ of *Strongylocentrotus lividus*; RAWITZ (255).—Criticism of

DELAGÉ (86) Zool. Rec. 1900, & RAWITZ (255) with general discussion of the question; BOVERI (42).—Reply to BOVERI (42); DELAGÉ (87) RAWITZ (256) p. 464.—Parthenogenesis, a natural tendency, was marked at critical period of maturation (see F. iv), and set going by an excitant which may be of various nature, proved by experiment on *Asterias glacialis* and *Strongylocentrotus*; DELAGÉ (88).—Effect of reagents on ovum of *Asterias glacialis* at critical stage, upsetting equilibrium; DELAGÉ (89) p. 872.—Effects of reagents on ova of *Strongylocentrotus* and *Asterias*, histologic phenomena, comparison with natural parthenogenesis; DELAGÉ (90).—Proportion of magnesium in ♂ and ♀ products of *Strongylocentrotus lividus* opposed to theory of LOEB (152) Zool. Rec. 1899; DELAGÉ, Y. & M. (91).—Effect of $MgCl_2$ solution: on ripe and unripe *Ech.* ova; PROWAZEK (247) p. 457, footnote: on unfertilised ova of *Toxopneustes variegatus* segmentation with half usual number of chromosomes, incomplete mitosis, formation of cytasters and centrosomes even in enucleated fragments, compared with those of normally fertilised ova; WILSON (322 & 324): ditto, production of plutei, description of internal changes; WILSON (325 & 326).—Artificial parthenogenesis or 'pseudogamy' due, among other causes, to dehydration and variation of osmotic pressure, 'tonogamy' and not to be confused with results of true fertilisation; GIARD (132).—Differences of osmotic pressure needed to induce artificial parthenogenesis in Echinoderms and *Chaetopterus*; LOEB (189) p. 449.—Sea-water condensed until isotonic with Loeb's 10%₀—15%₀ $2\frac{1}{2}n$ sodium chloride solutions causes development of unfertilised ova of *Arbacia*; HUNTER (159).—Experimental parthenogenesis, as of LOEB, MORGAN, HERTWIG, GIARD, perhaps due to osmotic pressure; BATAILLON (14) pp. 169–171.—General discussion of osmotic pressure and influence of various substances, with reference to work of LOEB, HERBST, DRIESCH; BATAILLON (15).—Shaking induces development of ova of *Asterias forbesii*; MATHEWS (204).—Artificial and natural parthenogenesis compared, reply to VIGUIER (343, 344) Zool. Rec. 1900; LOEB (189).—Experiments on ova of *Sphaerechinus granularis*, *Toxopneustes lividus*, and *Arbacia pustulosa*, obtain no definite result with Loeb's solutions, but find parthenogenetic segmentation accidentally taking place under [supposed] natural conditions, the parthenogenetic larvae of *Arbacia* being structurally different from normal larvae: a general criticism of LOEB, GIARD, DELAGÉ and others; VIGUIER (312).—Repetition of experiments of (312) to eliminate possibility of intra-ovarial fertilisation and contamination of water by sperm; absence of membrane in parthenogenetic larvae, as postulated by LOEB, is noted; VIGUIER (313).—Methods of sterilisation employed by LOEB not applicable to Algerian forms of *Toxopneustes* and *Sphaerechinus*, and least of all to *Arbacia*; VIGUIER (314).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

- i. **General**.—Power of migration of adult *Asterias*; MEAD (207) p. 205.—Echinoderm larvae found N. of 50° N. lat.; MORTENSEN (214).—Modern bathymetric distribution of stalked crinoids compared with ancient; SEELIGER (275) p. 46.—General discussion of bipolarity, evidence from Echinoderms adduced by Ludwig & Théel (p. 250), similarity of brood-pouches in northern *Cucumaria glacialis* and southern *C. laevigata* (p. 251), possibility of distrib. of free larvae dismissed (p. 255), former uniformity of conditions as suggested by

Théel, Pfeffer, & Murray (p. 256); THÉEL (297).—Bipolar theory absolutely unsupported by Echinoderms, see III, A, vi; KOEHLER (172).

ii. **Atlantic Ocean and adjacent Seas**:—General,—List of Echinoderms in Norman Coll.; NORMAN (226).

Scandinavia:—Christiania fjord, *Lasiaster* sp.; ØSTERGREN (231).

German Coasts:—Kieler Bucht, distribution of *Ast.*; BUEKKEL (48) p. 26 and tables.

British Coasts:—Clyde sea area, list of Echinoderms with depths and localities; TODD (302).—English Channel, Hampshire coast, compiled list of *Ast.*, *Oph.*, *Ech.*, *Hol.*; GARSTANG (126).

French Coasts:—*Echinus esculentus* off Portel, rarer than in Brittany; GIARD (130).—St. Vaast-la-Hougue: variations in abundance of *Synapta inhaerens*, *Asterina gibbosa*, and *Antedon rosacea* (p. 81) of *Asteracanthion rubens* (p. 103); FAUVEL (108): abundant *Ophiothrix fragilis*, *Echinus miliaris*, and *Ophiocnida brachiata*, reappearance of *Asterina gibbosa*, no *Antedon*; FAUVEL (109).—Fosse de Hague, 63–109 metres, contains purely litoral fauna, spp. of *Cribrella*, *Solaster*, *Psammechinus*; GADEAU DE KERVILLE (124).

Mediterranean:—Spain, coast of Gerona, fauna of sands, spp. of *Stichopus*, *Echinus*, *Brissopsis*, *Spatangus*, *Dorocidaris*, *Luidia*, *Palmipes*, *Ophioglypha*, *Antedon*, fauna of mud, *Stichopus*, *Astropecten*, *Heliactis*, *Ophioglypha*, *Ophiothrix*, *Antedon*; PRUVOT (248) pp. 38–41.—G. of Trieste, *Auricularia* and *Ophiopluteus*; CORI & STEUER (72) p. 112.

American Coast:—N. from Mexico, within 100 fms., revised list of *Hol.*, with locc. outside the area also quoted, *Synapta*, *Chiridota*, *Myriotrochus*, *Eupyrus*, *Trochostoma*, *Caudina*, *Psolus*, *Cucumaria*, *Thyone*, *Orcula*, *Thyonidium*, *Muelleria*, *Stichopus*, *Holothuria*; CLARK (65).—Battle Harbour, Labrador, *Strongylocentrotus*, *Asterias polaris*, *Ophiopholis aculeata*; RANKIN (252).—Coast of Canada, annotated list, with depths and habitat, partly based on writer's own dredgings: *Antedon*, *Pentacta*, *Psolus*, *Lophothuria*, *Thyone*, *Thyonidium*, *Orcula*, *Eupyrus*, *Trochostoma*, *Caudina*, *Chirodota*, *Myriotrochus*, *Pontaster*, *Pseudarchaster*, *Ctenodiscus*, *Leptoptychaster*, *Psilaster*, *Tosia*, *Hippasteria*, *Tremaster*, *Solaster*, *Crossaster*, *Lophaster*, *Pteraster*, *Cribrella*, *Pedicellaster*, *Stichaster*, *Asterias*, *Leptasterias*, *Odinia*, *Ophioglypha*, *Amphiura*, *Amphipholis*, *Ophiopholis*, *Ophiacantha*, *Ophiolebes*, *Ophioscolex*, *Gorgonocephalus*, *Astronyx*, *Strongylocentrotus*, *Echinarachnius*, *Schizaster*; WHITEAVES (320).—Narragansett Bay, distrib. of *Asterias* (p. 204), power of migration (p. 205); MEAD (207).—W. Indies, Porto Rico, annotated list of spp. of *Echinocucumis*, *Stichopus*, *Holothuria*, *Synapta*, *Cidaris*, *Dorocidaris*, *Asthenosoma*, *Diadema*, *Echinometra*, *Toxopneustes*, *Hippoonoe*, *Echinanthus*, *Mellita*, *Brissopsis*, *Palaeopneustes*, *Astropecten*, *Luidia*, *Zoroaster*, *Pentaceros*, *Asterina*, *Ophiidiaster*, *Linckia*, *Echinaster*, *Ophiura*, *Ophiopsis*, *Ophiozona*, *Ophiothyreus*, *Ophioglypha*, *Ophiomusium*, *Ophiothrix*, *Ophiocoma*, *Ophiopaila*, *Ophiactis*, *Amphiura*, *Amphipholis*, *Amphiodia*, *Amphioplus*, *Ophionereis*, *Ophiostigma*, *Ophiacantha*, *Ophialcaea*, *Ophiopristis*, *Ophioplithuca*, *Ophioscolex*, *Ophiomyxa*, *Astroporpa*, *Astroschema*, *Antedon*, *Actinometra*; CLARK (66).—Bermuda, corrected list of Echinoderms, see esp. *Cucumaria*, *Holothuria*, *Stichopus*, *Synapta*, *Chiridota*, *Luidia*, *Asterina*, *Linckia*, *Asterias*, *Ophiactis*, *Ophiocoma*, *Ophiomyxa*; CLARK (64).

iii. **Indian Ocean and adjacent Seas**:—Lists of *Ast.*, *Oph.*, *Ech.*, and *Hol.* dredged in over 100 fathoms, and comparison with W.

Indian, Atlantic, and Mediterranean faunas; ALCOCK (2) pp. 64-70 55-57.—List of *Hol.* previously known from Indian Archipelago (p. 142) and account of *Hol.* collected by the 'Siboga' 1899-1900, with bathymetric distrib., see under iv, is general, for list of genera; SLUITER (284).—Various locc., n. spp. of *Bathypolates*, *Bathyherpustikes* n. g., *Paclopatides*, *Synallactes*, *Meseres*, *Mesothuria*, *Pseudostichopus*, *Benthodytes*, *Scotodeima*, *Lartmogone*, *Ryodasma*, *Pannychia*, *Peniagone*, *Scotoanassa*, collected by 'Siboga'; SLUITER (283).—Various locc., n. spp. of *Stereocidaris*, *Sperosoma*, *Apidiadiadema*, *Dermatodiadema*, *Palaeopneustes*, and *Gymnapatagus* n. g.; DOEDERLEIN (94).

G. of Suez, Mirsa el Thilemel, *Phyllacanthus*, *Diadema*, *Psammochinus*, *Echinometra*, *Clypeaster*, *Echinodiscus*, *Echinolampas*, *Schizaster*, *Metalia*, *Lovenia*, *Moiria*; FOURTAU (117) p. 540.

iv. **Pacific Ocean and adjacent Seas:**—N. America, N. from Mexico, within 100 fms., revised list of *Hol.*, with locc. outside the area also quoted, *Synapta*, *Chiridota*, *Trochostoma*, *Psolus*, *Cucumaria*, *Thyone*, *Stichopus*; CLARK (65).

Qualicum R., Str. of Georgia, B. C., *Tosia granularis*; WHITEHEAD (320) p. 49.—Puget Sound, *Synapta*, *Cucumaria*, *Psolus*, *Echinarachnius*, *Clypeaster*, *Toxopneustes*, *Echinometra*, *Strongylocentrotus*, *Diadema*, *Arbacia*, *Dermasterias*, *Solaster*, *Pteraster*, *Retaster*, *Cribrella*, *Echinaster*, *Asterias*, *Pycnopodia*, *Ophioglypha*, *Ophiopholis*, *Amphiura*, some spp. show extension of range; CLARK (63).—General account of *Hol.*, Pacific Grove, California, *Synapta*, *Cucumaria*, *Psolus*, *Thyone*, *Thyonepsolus*, *Stichopus*, evidence of circumpolarity in spp. of first 3 genera; CLARK (62).

v. **Arctic Ocean and adjacent Seas:**—Shallow-water tropical genera found in deep water of Arctic regions; SEELIGER (275) p. 35.—List of Echinoderms in Norman Coll.; NORMAN (226).—Barents Sea, Nova Zembla, and Franz Josef Land, spp. of *Cucumaria*, *Elpidia*, *Myriotrochus*, *Psolus*, *Trochostoma*, *Pourtalesia*, *Schizaster*, *Strongylocentrotus*, *Archaster*, *Asterias*, *Cribrella*, *Ctenodiscus*, *Hymenaster*, *Lophaster*, *Pteraster*, *Rhegaster*, *Solaster*, *Stichaster*, *Gorgonocephalus*, *Ophiocantha*, *Ophioglypha*, *Ophiopholis*, *Ophiopleura*, *Ophioscolex*, *Antedon*; KNIPOVITSCH (171).—North of Norway, Spitzbergen, Iceland, list of *Ech.* and *Oph.* dredged by 'Princesse Alice,' no new spp., but remarks under spp. of *Schizaster*, *Ophioglypha*, *Ophiopleura*, *Amphilepis*, *Amphiura*, *Antedon*; KOEHLER (173).—Off Spitzbergen, 100 metres, *Antedon*, *Asterias* (p. 79), off Jan Mayen, 72° 1' N., 8° 33' W., 2400 metres, *Tylaster*, *Kolga*, *Elpidia* (p. 96); KOLTHOFF (174).—Between Jan Mayen and Greenland, n. spp. of *Crossaster*, *Retaster*, *Myriotrochus*; spp. of *Tylaster*, *Rhegaster*, *Solaster*, *Korethraaster*, *Hexaster*, *Hymenaster*, *Asterias*, *Pourtalesia*, *Kolga*, *Trochostoma*, *Trochoderma*, *Bathyer.*, new to the region; ÖSTERGREN (231).—Off East Greenland, 72° 25' N., 17° 57' W., 300 metres, *Pteraster*, *Hymenaster*, *Korethraaster*, *Crossaster*, *Retaster* (p. 117), 72° 42' N., 14° 49' W., 2000 metres, *Pourtalesia* sp. 100 specimens, *Elpidia* sp. 1000 specimens, *Kolga*, *Myriotrochus*, *Bathyer.* (p. 210), E. Greenland, Bonteko Id., *Astrophyston* (p. 152), Mouth of Franz Josef fjord, 200-300 metres, *Pourtalesia* (p. 176), E. Greenland, Mackenzie Bay, *Antedon* (p. 206); KOLTHOFF (174).—W. coast of Greenland, annotated list of Echinoderms collected by Princeton Expedition, 1899, with comparative geogr. and bathymetric distrib.: *Cucumaria*, *Myriotrochus*, *Strongylocentrotus*, *Asterias*, *Stichaster*, *Cribrella*, *Solaster*, *Pteraster*, *Ophioglypha*, *Ophiaster*, *Amphiura*, *Ophiocantha*, *Antedon*; Arctic Echinoderms probably all circumpolar; RANKIN (252).

- vi. **Antarctic Ocean and adjacent Seas:**—Antarctic and sub-Antarctic abysmal *Ast.*, *Oph.*, *Ech.*, *Crin.*, *Hol.*, list based apparently on Challenger Report, with no reference to more recent work; SHIPLEY (279).—Antarctic and sub-Antarctic littoral *Hol.*, *Ech.*, *Ast.*, *Oph.*, *Crin.*, general discussion of genera (pp. 479–482), distrib. of genera and spp. (pp. 562–566); PFEFFER (241).—Kerguelen Id., summary of *Hol.*, *Ech.*, *Ast.*, *Oph.*, compiled from Studer, ‘Challenger,’ Transit of Venus expeditions, &c.; THOMPSON (300) pp. 279–283.—S. Georgia, list of *Hol.* after Lampert, of *Ech.* after Pfeffer, of *Ast.* and *Oph.* after Studer; PFEFFER (241).—Collections of ‘Belgica’ betw. lat. 69° 59' and 71° 18' S. and long. 80° 54' and 102° 15' W.: *Goniocidaris*, *Porocidaris*, *Sterechinus*, *Amphipneustes*, *Hemiasiter*, *Ophioglypha*, *Ophiocten*, *Ophiomastus*, *Ophiopyrgus*, *Ophiopyren*, *Amphiura*, *Ophiocamax*, *Ophiacantha*: no resemblance to Arctic fauna and not much to sub-Antarctic; KOEHLER (172).—Antarctic, *Hol.* collected by ‘Belgica’, *Chirodota*, *Trochostoma*, *Cucumaria*, n. spp. of *Psolus*, *Cucumaria*, *Peniagone*, *Rhipidothuria* n. g., and *Mesothuria*; HEROUARD (150).

B. GEOLOGICAL

(i) GENERAL

General account of fossil Echinoderms with special reference to Bohemia, figures from Steinmann and Doederlein, also after Barraude, and some new; POČTA (244) pp. 143–201, 620.—General sketch of palæontology of *Oph.*; HAMANN (146) p. 894.—Distribution of “Tessellate” *Crin.*, especially in France; FRITEL (122) pp. 271, 272.

(ii) CAINOZOIC.

- a. **General:**—Tertiary of Achalzich, Caucasus, *Hemiasiter*; LEBEDEV (185) p. 61.
- b. **Pleistocene:**—Near Christiania, *Ophiura*, *Echinus*; BJØRLYKKE (29) p. 79.—Yoldia clay near Christiania, *Echinus*, *Echinocyamus* (p. 14), near Trondhjem, *Echinus* (p. 127); Arca clay of Norway, *Ophiura*, *Ctenodiscus*, *Tripylus* (p. 157); post-glacial *Tapes* beds near Christiania, *Echinus*, *Echinocyamus* (p. 437); *Isocardia* clay S. of Fallakso, *Tripylus* or *Amphidetus* (p. 477); lower *Tapes* beds, Trosvik and Smedholm, *Echinus*, *Echinocyamus*, *Brissopsis* (p. 520), at Kalstadkjorn, *Echinus*, *Echinocyamus*, a *Spatangid* (p. 531); Arca clay, Solberg, *Tripylus* (p. 641); BRØGGER (46).—Post-glacial-drift beds of Clyde drainage area, *Ophiopholis*, *Ophiura*, *Strongylocentrotus*, *Echinus*, *Echinocyamus*, *Echinocardium*, *Psolus*; SMITH et al. (287) p. 533.—Boring at Midden-Beemster, Holland, *Echinocardium*, *Echinocyamus*; LORIÉ (191) p. 22. S. Paolo near Etna, *Strongylocentrotus*, *Echinocyamus*, *Schizaster* (p. 2), Catira near Catania, *Brissus*, *Schizaster*, *Echinocyamus* (pp. 6, 7, 9); SCALIA (272).—Postpliocene sands at Cape Milazzo, Sicily, *Echinus*, *Echinocyamus*; DE STEFANO (85) p. 10.
- G. of Akaba, *Echinus verruculatus*, a Mauritian sp. associated with *Pecten vasseli* and *Chamys latissima*; HUME (156) p. 203.—Gravels and reef limestones, G. of Akabah and E. Sinai, *Laganum*, *Heterocentrotus*, *Echinus*, *Echinometra*; HUME (157) pp. 22, 31, 34, and (158) pp. 914, 920, 922.—Raised beaches, Red Sea, *Echinometra*, *Phyllacanthus*, *Laganum*, *Heterocentrotus*, *Brissus*, *Clypeaster*; BARRON & HUME (13) pp. 871, 872.—German E. Africa, *Clypeaster*, *Cidaris*, *Schizaster*, *Salmacis*; WERTH (319) pp. 290, 292, 300.

- c. **Pleiocene**:—British *Ech.*, historical specimens; ALLEN (6) p. 182. Piedmont and Liguria, *Cidaris*, *Dorocidaris*, *Diadema*, *Echin*, *Psammecinus*, *Echinocyamus*, *Echinolampas*, *Hemizaster*, *Brisopsis*, *Schizaster*, *Spatangus*; AIRAGHI (1).
 Upper:—4, Punta Meliso and Alessano, N.E. Italy, *Spatangus*, *Psammecinus*; DAINELLI (79) pp. 626, 674.
 Middle:—Asian at Cape Milazzo, Sicily, *Leiocidaris*, *Stirochima* DE STEFANO (85) p. 7.—Egypt, additions of *Ech.* to list by MARY EYMAR, *Clypeaster*, *Echinocardium*, *Echinolampas* (pp. 335, 363, 364), Mokattam, *Cidaris*, *Echinocyamus* (p. 379); BLANCKENHORN (31).
 Lower or Mid. Pliocene of Milos, *Psammecinus*, *Cidaris*, *Schizaster*, *Spatangus*; FUCHS (123) p. 4.
 Lower:—Plaisancian, Ghizeh, Egypt, *Echinolampas medei* n. sp. type in Mus. Paris; FOURTAU (119) p. 86.—Greece, Pikermi beds of Euboea, *Clypeaster*; FUCHS (123) p. 2.—Paraná beds, Argentina Republic and Patagonia, *Monophora*; BOBCHERT (37) p. 229.
- d. **Meiocene**:—Umbria, *Cidaris*, *Conoclypeus*, *Echinolampas*, *Echin*, *thus*, *Schizaster*, *Pentacr.*; VERRI & ANGELES D'OSSAT (311) pp. 1, 20.—Cilicia, *Clypeaster*, *Schizaster*, *Echinolampas*; SCHAEFFER (27) pp. 49, 51, 53, 54, 57, 72.—Egypt and Syria, compiled list of *Ech.* as *Ast.* (p. 106), near Mirsa Badia in Barka, N.W. of Egypt, *Martia* (p. 114), *Clypeaster*, *Scutella*, *Echinolampas*, *Schizaster*, *Hemipatagus* (p. 104), near Mirsa Tobruk, *Echinolampas*, *Scutella*, *Amphiope* (p. 105), Gebel Geneffe, *Pliolampas*, *Scutella*, *Pericosmus*, *Martia*, *Spatangus*, *Eupatagus* (pp. 83, 85), N. Arabian desert, N.W. of Sue, *Schizaster*, *Echinolampas*, *Scutella* (p. 82), Sinai, *Martia* (p. 76) BLANCKENHORN (30).—Java, *Laganum multifforme* and 9 *Ech.* spp. previously known; MARTIN (201) pp. 141, 193.—Burma, *Cidaris*, *Clypeaster*; NOETLING (225) p. 104.—North Formosa, *Echinodiscus*, *Astriclypeus*, *Schizaster* (p. 60), Iriomote-jima, Loochoo Is., sandstone of Hoka-banare, *Echinodiscus*, *Astriclypeus* (p. 51); YOSHIWARA (232).
 Upper:—Bolderian of Heyst-op-den-Berg, Belgium, *Cidaris*; VAN ERTBOORN (308).—Tortonian of Piedmont and Liguria, *Micropodites*, *Arbacina*, *Anapesus*; AIRAGHI (1).
 Middle:—Capo di Leuca, N.E. Italy, *Echinolampas*, *Conoclypeus* DAINELLI (79) pp. 622, 653.—Helvetian,—at Cape Milazzo, Sicily, *Cidaris*, *Leiocidaris*; DE STEFANO (85) p. 4: Piedmont and Liguria, *Cidaris*, *Diadema*, *Echinocyamus*, *Clypeaster*, *Echinolampas*, *Pericosmus*, *Arbacina*, *Hipponoe*, *Brisopsis*, *Schizaster*, *Heterobrisia*, *Martania*, *Euspatangus*, *Spatangus*; AIRAGHI (1); (Vindobonian Egypt, list of *Ech.* (p. 59), n. spp. of *Psammecinus*, *Scutella*, *Clypeaster*, types in Mus. Hist. Nat. Paris; FOURTAU (119).—Upper Mediterranean beds, Ipoly- and Garam-thal, Hungary, *Clypeaster*; HORUSITSKY (154).
 Lower:—n Mediterranean stage in Servia: Limestone resembling Leithakalk, Višnjica and Leštani, sands of Vojilovo and Tisnajađan, *Clypeaster*, *Echinolampas*, *Scutella*, *Amphiope*, *Schizaster*, *Psammecinus*, *echinus*, *Brisus*; PAVLOVIC (234).—Upper Burdigalian, Egypt, list of *Ech.* (p. 59), n. spp. of *Arbacina*, *Clypeaster*, types in Mus. Hist. Nat. Paris, *Echinocardium*, *Echinolampas*, *Brisopsis*; FOURTAU (119).—Aquitania near Acqui, *Spatangus*, *Pericosmus*, *Echinolampas*, *Coptosoma*; ALESSANDRI (4) pp. 282-285.—Mid. Aquitanian Gironde, *Amphiope*, *Scutella*; FALLOT (106) p. 11.—Lower Langhian of Leognan, Gironde, *Scutella*, *Echinolampas*; FALLOT (106) p. 20.—Patagonian formation, G. of S. Jorge, *Psammecinus iheringi* n. sp. and *Schizaster*; LORDEL (192) p. 37.

- e. **Oligocene** :—Antigua, *Diplotheccanthus*, *Echinanthus*; GREGORY (143) p. 295.—Russell Spring, Georgia, *Echinocyamus* et alii; VAUGHAN (309) p. 874.
- Middle :—Rupelthou, Offenbach, *Schizaster*; ZINNDORF (336) p. 123.
- Tongria of Piedmont and Liguria, *Cidaris*, *Echinocyamus*, *Clypeaster*, *Scutella*, *Amphiope*, *Echinanthus*, *Echinolampas*, *Brissus*, *Linthia*, *Schizaster*, *Pericosmus*, *Macropneustes*, *Euspatangus*; AIRAGHI (1). — Stampian, — Calcaire à Astéries, S. E. of La Réole (Gironde), *Scutella*, *Crenaster*; REPELIN (260) p. 51: Bordeaux, *Crenaster*, *Scutella*, *Echinolampas*, *Echinocyamus*, *Amphiope*; FALLOT (106) pp. 3, 4, 19.
- Lower :—Marne a *Spondylus* de Kiew, Poltawa, et Tschernigow, *Cidaris* 3 spp.; TOUTKOWSKI (306) p. 19.
- f. **Eocene** :—British *Ech.*, *Ast.*, *Oph.*, *Crin.*, historical specimens; ALLEN (5) p. 199.—Friuli, *Brissopsis* (p. 184); Istria, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Echinocyamus*, *Pericosmus*; of Herzegovina, *Micropsis*, *Echinolampas*, *Macropneustes* (pp. 227–230); Ajka, Bakony, *Schizaster*, *Hemiasiter*, *Cyphosoma* (pp. 165–168); Guttaring in Carinthia, *Conoclypeus*, *Ilurionia*, *Echinolampas*, *Linthia* (pp. 148, 149); OFFENHEIM (229).
- Upper :—Near Blaye, *Sismondia*, *Echinopsis*, *Echinolampas*; FALLOT (106) p. 6.—Nimmulitic, Dshulfi, *Euspatangus*, *Schizaster*, *Conoclypeus*; Araxes valley, *Periaster*, *Cidaris*; LEBEDEV (185) pp. 100, 101.—Ludian near Biarritz, *Cidaris*, *Scutella*, *Echinolampas*, *Euspatangus*, *Hemiasiter*, *Schizaster*, *Hemipatagus*; CAREZ (55) p. 12.—Lower Bartonian, Calcarei di Gassino e di Cavigione, Piedmont and Liguria, *Cidaris*, *Rhabdocidaris*, *Psammechinus*, *Sismondia*, *Runa*, *Echinanthus*, *Echinolampas*, *Craterolampas*, *Rovasendia*, *Prenaster*; AIRAGHI (1).—Bartonian near Biarritz, *Psammechinus*, *Micropsis*, *Cyphosoma*, *Echinopsis*, *Coelopleurus*, *Porocidaris*, *Cidaris*, *Salenia*, *Echinocyamus*, *Sismondia*, *Echinanthus*, *Pygorhynchus*, *Echinolampas*, *Amblypygus*, *Hemiasiter*, *Periaster*, *Schizaster*, *Prenaster*, *Macropneustes*, *Brissopatus*, *Euspatangus*; CAREZ (55) p. 12.
- Middle :—Egypt, n. spp. of *Rhabdocidaris*, *Coptosoma*, *Sismondia*, *Brissopsis*, types in Mus. Hist. Nat. Paris; FOURTAU (119).—Between Kachan and Ispahan, Persia, *Conoclypeus*, *Echinolampas* (p. 442); Sewankouh, Persia, *Schizaster*, *Ditremaster*, *Pericosmus*, *Linthia*, *Brissopsis*, *Euspatangus* (p. 445); DOUVILLÉ (96).
- Lower :—Haute-Garonne, *Echinanthus* spp., *Conoclypeus*, *Oriolampas*; CAREZ (55) p. 19.—Egypt, n. spp. of *Orthechinus*, *Schizaster*, and a *Macropneustes*?, types in Mus. Hist. Nat. Paris; FOURTAU (119).—London clay of Fehmarn and Jutland, *Pentacr.*, fide GOTTSCHE & RAVN; STOLLEY (292).—Lutetian, Calcaire Grossier de Blaye, *Sismondia*, *Praescutella*, *Euspatangus*, *Linthia*, *Echinolampas*; FALLOT (106) p. 7.—Montian near Belfroy de Mons, Belgium *Pentacr.*, *Pentagonaster*; CORNET (73) p. 253.
- Nanjemoy formation at Evergreen, Virginia, spatangoid fragments: Aquia formation, various locc., Maryland, Diademid and Cidarid spines; CLARK & MARTIN (67).

(iii) MESOZOIC.

- a. **General** :—Mesozoic Echinoderms of S. America, a list; VILLAREAL (315) p. 131.—List of fossils from canton d'Alzon (Gard); BRUN (47) p. 15, vide etiam iii, c, 2.
- b. **Cretaceous** :—Kislovodsk, Caucasus, *Heteraster*, *Cidaris*; LEBEDEV (185) p. 187.—Texas, *Ananchytes*, *Cidaris*, *Cyphosoma*, *Diplopodia*, *Dumblea*, *Echinobrissus*, *Enallaster*, *Epiaster*, *Goniopygus*, *Hemiasiter*,

Holaster, *Holactypus*, *Leiocidaris*, *Orthopsis*, *Pseudodiadema*, *Pyria*, *Salenia*; types of n. spp. are in Mus. Geol. Surv. Texas: CRAIG (71).—Figd. *Mellita quinquefora*, var. *ampla*, S. Carolina, in AMER. NAT. Hist.; WHITFIELD & HOVEY (321) p. 462.

1. Upper:—Zonal distribution of Echinoderms in chalk of Dorset and from zone of *Rhynchonella curieri* to zone of *Belemnitella mucronata* (pp. 72, 73), and under special locs., *passim*: *Bourguetier*, *Pentac.*, *Marsupites*, *Urtacr.*, *Oreaster*, *Calliderma*, *Ophiura*, *Cidaria*, *Cyphosoma*, *Salenia*, *Echinocorys*, *Echinoconus*, *Discoides*, *Micraster*, *Hemiaster*, *Holaster*, *Cardiaster*; ROWE (265).—Pattenader Mergel *Echinocorys* (p. 28) and Grünsandstein, *Micraster* (p. 29), of Stallau Eck, Bavarian Alps; IMKELLER (161).

Danian (= Maestrichtian):—Rügen, spicules of *Chiridota*; SCHACK in GEINITZ (129) p. 289.—(?) Phosphates of Hesbaye, Assise de Spiennes, Belgium, list of *Ech.*; FORIR (115) p. 16.—Landona, Gironde, *Hemipneustes* and *Echinoconus gigas*; FALLOT (106) p. 2.—Haute-Garonne, *Micraster*, *Hemiaster*, *Schizaster*, *Cyclaster*, *Ananchytes*, *Micropsis*, *Cyphosoma*, *Echinocorys*, *Hemipneustes*, *Offaster*; CAREZ (55) p. 20.—Caseville (Pyrenées), *Galeaster*, *Jeronia*, *Conaster*, and spp. of *Echinocorys*; CAREZ (55) p. 7.—(?) Baktyaris, Persia, list of *Ech.*, as descr. by Cotteau & Gauthier, compared with contemporaneous *Ech.* fauna of Algeria; DOUVILLÉ (96) p. 444.—Bahariyah Oasis, *Ech.* indett.; BEADNELL (20) p. 852.—Proved at Zau Saghair S. of Bilma in Sahara by an *Ech.* of Indian type, *Noetlingia monteili* n. sp.; LAPPARENT (180, 181, 182): GAUTHIER (127).

Senonian:—Touraine, *Micraster*, *Hemiaster*, *Cyphosoma*, *Salenia*, *Pyria*, *Catopygus*, *Trematopygus*, *Nucleolites*; GROSSOUVRE (145) pp. 9, 10.—Marls of Bastie near Foix, *Micraster*, *Ananchytes*, *Holaster*; CAREZ (55) p. 22.—Pacy-sur-Eure, *Echinoconus*, *Echinocorys*, *Ananchytes*, *Micraster*; CHEDEVILLE (58) p. 138.—Near Pjatigorsk, Caucasus, *Galerites*, *Ananchytes*, *Micraster*, *Camidulus* (pp. 219, 220, 221), near Batoum, *Ananchytes* (p. 121), Kutais, *Micraster*, *Ananchytes*, *Pentacr.* (pp. 243, 263, 264, 276), Daghestan, *Ananchytes*, *Micraster* (pp. 204, 212, 214, 215); LEBEDEV (185).—Fanivelona, N. of Mahela, in E. Madagascar, *Balaster*, *Epiaster*; BOULE (39) p. 684.

Upper Senonian,—of Biewende bei Wolfenbüttel, Braunschweig, *Echinoconus*, *Ananchytes*, *Micraster*; WOLLEMAN (329) p. 11.—(?) Karenz beds, Mecklenburg, *Cardiaster*; GEINITZ (129) p. 319.—La Madeleine, Dauphiné, *Cardiaster*; LOBY (193) p. 998.—Haute-Garonne, *Ananchytes*, *Echinoconus*, *Offaster*; CAREZ (55) p. 20.—Pyrenees, *Micraster*; ROUSSEL (263).—Near Bidart (Pyrenées) spp. of *Stegaster*; CAREZ (55) p. 6.—Niobrara Chalk near Elkader, W. Kansas, locs. of *Urtacr.* descr. in detail (p. 4), exact horizon discussed (p. 9), European representatives (p. 87); SPRINGER (290).—Roca, Rio Negro, *Hemiaster* of Indian (*Arriador* group) affinities; BURCKHARDT (50) p. 209.

Middle Senonian, Pyrenees, *Hemiaster*, *Pyria*, *Clypeolampas*, *Salenia*, *Orthopsis*, *Cyphosoma*; ROUSSEL (263) p. 15.

Lower Senonian,—near Leychert, *Micraster brevis* (p. 25), Corbières, *Micraster*, *Holaster*, *Ananchytes* (p. 31) CAREZ (55).—(Santonian), Haut Quercy, France, *Echinobriassus*; FOURNIER (116) p. 23: Egypt, *Cyphosoma*, *Holaster*, and n. spp. of *Rhabdocidaris*, *Goniopygus*, types in Mus. Hist. Nat. Paris; FOURTAU (119): Zones of *Gryphaea vesicularis* and *Nerita d'archiaci*, Baluchistan, *Holactypus*, *Clypeolampas*, *Hemipneustes*, *Hemiaster*, *Cyphosoma*, *Protechinus*, *Pyria*, *Echinanthus*; NOETLING (224) pp. 53–56: (Lower), Kieslingswalde Sandstein, Glatz, *Cardiaster*, *Hemiaster*; STURM (296) p. 97.—Priesener-

- schichten in Egergebiete, Bohemia, list of *Crin.*, *Ech.*, *Ast.*, *Oph.*, *Hol.*; ZAHÁLKA (333) p. 91.
- Lower Senonian or Upper Turonian clay of Nienhagen and Revahl in Mecklenburg, either minute *Crin.* columnals or spicules of *Chiridota*; SCHACKO in GEINITZ (129) p. 289.
- Senonian and Cenomanian, Schamchal-dagh and Erpeli, *Ananchytes*, *Holaster*, *Offaster*, *Isaster*, *Pentacr.*; LEBEDEV (185) p. 206.
- Turonian?, beds from Cenomanian to Senonian, Baharia Oasis, *Hemiaster*, *Heterodiadema*; BEADNELL (20) p. 852.
- Turonian:—Maine and Touraine, *Discoidea*, *Cidaris*; GROSSOUVRE (145) pp. 7, 8.—Haut Quercy, France, *Anorthopygus*, *Linthia*; FOURNIER (116) p. 23.—Portugal, character of Echinoderms (p. 769), *Anorthopygus* (p. 763); CHOFFAT (61).—Egypt, *Coptosoma lefebvrei* n. sp., type at Paris; FOURTAU (119) p. 29.—(?) of Lebanon, *Pseudopileus zumoffeni* n. g. et sp., type in coll. Zumoffen; LORIOU (192) p. 30.
- Upper Turonian, (Angoumian), zone of *Holaster planus*: in the Osningsberg chain of the Teutoburger Wald, spp. of *Ananchytes*, *Holaster*, *Infulaster*, *Cidaris*, *Salenia*, *Echinoconus*, *Micraster*, *Phymosoma* [= *Cyphosoma*], *Hemiaster*, *Holasteropsis* n. g., and *Pentacr.* [= *Isocr.*], comparison with contemporary fauna in other countries; ELBERT (103) pp. 98–105, 113 et seq.: Dover, spp. of *Holaster*, *Micraster*, *Echinocorys*, *Cyphosoma*, and *Pentacr.*; ROWE (266).—Pläner near Pardubitz, Bohemia, *Ananchytes* (p. 471), *Holaster*, *Micraster*, *Holothuria* (473); HINTERLECHNER (153).
- Lower Turonian, Teplitzer-schichten in Egergebiete, Bohemia, lists of *Ech.*, *Ast.*, *Oph.*, *Crin.*, *Hol.*, according to horizons (pp. 31, 35), and according to localities (pp. 43–49); ZAHÁLKA (334).
- Cenomanian-Turonian, Orizaba limestone, Mexico, *Salenia*, *Diadema*, *Cyphosoma*, *Pyrina*, *Toxaster*, *Hemiaster*; BOESE (36) p. 11.
- Cenomanian:—Glynde, Sussex, *Peltastes*; JOHNSON (163).—Mecklenburg, spp. of *Discoidea*, *Holaster*, *Hemiaster*, also fragments of *Cidaris*, *Cyphosoma* [i.e. *Phymosoma*], *Asterias*, *Bourgueticr.*; GEINITZ (129) p. 277.—Near Mans, *Anorthopygus*, *Codiopsis*, *Hemiaster*, *Peltastes*, *Catopygus*, *Cidaris*, *Nucleolites*; GROSSOUVRE (145) pp. 4, 5, 6.—Haut Quercy, France, *Anorthopygus*, *Holaster*, *Hemiaster*; FOURNIER (116) p. 23.—Foix, *Epiaster*, *Hemiaster*, *Pyrina*, *Echinoconus*, *Discoidea*, *Peltastes*, *Salenia*, *Cidaris*, *Orthopsis*, *Cyphosoma*, *Cottaldia* (p. 24), Corbières, *Holaster*, *Discoidea* (p. 29); CAREZ (55).—Assise a *Neolobites vibrayanus*, Portugal, list of *Ech.*; CHOFFAT (61) p. 761.—(1), conglomerates of Rucăr, basin of Dimbovitza, *Cidaris vesiculosa*; SIMIONESCU (281) p. 36.—Lebanon, n. spp. of *Cidaris*, *Rhabdocidaris*, *Pseudocidaris*, *Acrocidaris*, *Codiopsis*, *Goniopygus*, *Pygopistes*, *Neoclypeus* n. g., *Catopygus*, and spp. of *Pseudodiadema*, *Diplopodia*, *Orthopsis*, *Echinobrissus*, all types in coll. Zumoffen, Univ. St Joseph, Beyrout; LORIOU (192).—Jebel Gunnah, E. Sinai, *Hemiaster*, *Pseudodiadema*, *Heterodiadema*, *Nucleolites*; HUME (157) pp. 40–42, (156) p. 203, & (158) pp. 927, 928.—Egypt, various horizons and loc., *Diplopodia*, *Tiaridia*, *Heterodiadema*, *Pedinopsis*, *Salenia*, *Goniopygus*, *Discoidea*, and n. spp. of *Archiacia* and *Hemiaster*, types in Mus. Hist. Nat. Paris; FOURTAU (119).
- Selbornian, Wiltshire, *Cardiaster*, *Catopygus*, *Cottaldia*, *Discoidea*, *Echinobrissus*, *Echinoconus*, *Echinocyphus*, *Echinospatangus*, *Epiaster*, *Glyphocyphus*, *Goniophorus*, *Hemiaster*, *Holaster*, *Peltastes*, *Pseudodiadema*, *Salenia*, *Nymphaster*; JUKES-BROWNE & SCANES (167) pp. 118–119.
- Upper Albian?, Chloritic Marl at Mupe B., Dorset, *Cidaris*, *Echinoconus*, *Holaster*; STRAHAN (293).

2. Lower:—

Aptian:—near Uzès (Gard), *Holaster*, *Discoides*, *Phyllobrissus*, *Hemidiadema*, *Toxaster*; PELLAT (237).—Corbières, *Cidaris*, *Echinospatagus*, *Pseudodiadema*; CAREZ (55) p. 28.—Louristan, Pers. *Hypaster*, *Epiaster*; DOUVILLÉ (96) p. 444.

Barremian:—Lom valley in Bulgaria, *Hemicidaris*, *Heteraster*; PAQUIER & ZLATARSKY (233).—Djebel Ouach and Guelma in Alger. *Toxaster*, *Collyrites*; JOLEAUD (164) pp. 129, 130, 137.—(Lower) *Cidaris*, *Goniopygus*, *Nucleopygus*; PAQUIER (232) p. 998.

Neocomian:—of Germigny near Gray, *Pygurus*, *Phyllobrissus*, *Echinospatagus*, *Holactypus*, *Pseudodiadema*, *Cidaris*, *Peltaster*; MAILLARD (198).—Basin of Dimbovitza, *Echinospatagus*; SIMIONESCU (28) p. 100.—Gunib and Schunu-dagh, Daghestan, *Pseudodiadema*, *Pygurus*, *Clypeopygus* (p. 207), *Pentacr.* (p. 208), *Holactypus* (pp. 20, 212); LEBEDEV (185).—S. of Perewal, Little Balkan, *Toxaster*; BOEHM (34). Hauterivian.—Hammam Lif in Tunis, *Cidaris*; JOLEAUD (164) p. 141. Upper Valanginian, "calcaire miroitants de Saturargues" near Montpellier, *Pygurus*; ROUVILLÉ (264).

Glen Rose formation, *Pseudodiadema* (p. 225), Fort Worth Limestone *Epiaster* (p. 235); Edwards Plateau, Texas; HILL & VAUGHAN (151) p. 235.

Rolling Downs formation, Maranoa R., Queensland, *Isocr.*; ETHERIDGE (105) p. 6.

- c. **Jurassic**:—Various exposures of Jurassic rocks in Franconia, near Streitberg, Amberg, Eichstätt, and Ebermannstadt, lists of the commoner Echinoderms; AMMON (10) pp. 18, 26, 41, 55, 57, 60, 63, 69, 74, 75, 77, 81, 82, 84, 86.—Semi-tschai valley, and Kawait min Caucasus, *Millericr.*, *Apiocr.*, *Ceriocr.*, *Pentacr.*, *Cidaris*, *Sphaerites*; LEBEDEV (185) pp. 110, 111.

1. Upper:—

Portlandian (=Tithonian):—Stramberg beds at Nesselstorf in Moravia: n. spp. of *Cidaris*, *Pseudocidaris*, *Peltaster*, *Magnosia*, *Codiopsis* and other *Cidaris*, all types in coll. M. Remes, Olmütz. LORIOI (192): *Eugeniocrinida*, figures of deformities, n. spp. *Cyrtocr.* and *Eugeniocr.*; REMES (259).—Vainia Gluvala, Dimbovitza basin, Roumania, *Pygaster*, *Pseudodiadema*, *Salenia*, *Rhabdocidaris*, *Pentacr.* (p. 22), *Echinospatagus* (p. 23); SIMIONESCU (281) p. 22.—Near Kislowodsk, Caucasus, *Holactypus*, *Salenia*; LEBEDEV (185) p. 225.

Kimmeridgian:—Upper, —Kleine-Deister, Hanover, *Hemicidaris*; WUNSTORF (331) p. 36. Middle, —Kleine-Deister, Hanover, *Cidaris*, *Pygurus*, *Echinobrissus*; WUNSTORF (331) p. 35. Lower, —(Pteroceran) Torres-Vedras, list of *Ech.*; CHOFFAT (60) p. 120.

Sequanian:—Upper, —(Astartian) N. of Gramat, near Gourdon France, *Acrosalenia*; FOURNIER (116) p. 19.—(Lusitanian) Torres Vedras, *Ech.*, *Crin.* (pp. 117, 118), of Algarve, *Ech.* (p. 133); CHOFFAT (60).—(Corallian) Kleine-Deister, Hanover, *Cidaris*, *Millericr.*; WUNSTORF (331) p. 33.

2. Middle:—

Limestone on Misool Id. in Moluccas, *Crin.* indett.; BOEHM (35) p. 8. Rauracian at Liesberg, Switzerland, *Cidaris*, *Hemicidaris*; ROLLIER (262). Spines in decomposed limestone of Rauracian not Tertiary age in Dept. l'Yonne; PERON (238). Lower Rauracian, La Motte, N. of la Paturie, near Gray, *Hemicidaris*, *Collyrites*, *Dynaster*, *Stomechinus*, *Cidaris*, *Rhabdocidaris*, *Millericr.*, at Neuville, *Echinobrissus* and *Antedon*, all species determined by P. DE LORIOI; MAIRE (199).

- Oxfordian:—Upper,—near Villers-sur-Mer (Calvados), *Cidaris*, *Nucleolites*, *Hemicidaris*, *Acrosalenia*, *Diplopodia*, *Holectypus*, *Pygaster*, *Pseudodiadema*, *Millericr.*; RASPAIL (253) pp. 126, 195.—Oolithe de Trouville at Auberville (Calvados) *Nucleolites*; RASPAIL (253) p. 149.—R. Kazchura in Kutais, *Pentacr.* [i.e. *Isocr.*], *Eugeniocr.*, *Apiocr.*; LEBEDEV (185) p. 255. Lower,—gorge of R. Vis (Gard), *Cidaris*, *Collyrites*, *Holectypus*, *Balanocr.*; BRUN (47) p. 5.
- Callovian:—Giswyl, Switzerland, *Pentacr.* (*Balanocr.* ?), *Millericr.*; HUGI (155) p. 49.—Valea Lupului, Dimbovitza basin, Roumania, Crinoid limestones with *Pentacr.*; SIMIONESCU (281) p. 18: *Cidaris*; SIMIONESCU (282) p. 42,—(?) of Tindi, Caucasus, *Pentacr.*; AMMON (11) p. 745. Upper.—Marnes de Dives at Auberville (Calvados), *Pentacr.*; RASPAIL (253) p. 146.
3. Lower:—
- Sundance formation, Block Hills, Dakota, *Pentacr.*; DARTON (81) p. 521:—Near Giltedge, Montana, *Pentacr.*; WEED (317) p. 478.
- Cornbrash of Scarborough, Yorksh., *Echinobrius*, *Holectypus*, *Pentacr.*; COOKE (71).
- Bathonian:—N. of Gramat, near Gourdon, France, *Pseudodiadema*; FOURNIER (116) p. 18.—Horizon of [*Rhynchonella*?] *varians*, *Acrosalenia*, *Holectypus*, *Hybocypeus*, *Pygurus*, *Echinobrius*, *Clypeus*, *Collyrites* (p. 56); horizon of *Stephanoceras blagdeni*, *Pentacr.*, *Cainocr.*, *Asterias* (p. 50): near Gelterkinden, Basle; BUXTORF (53).
- Bajocian:—Lower,—near Comberjon (Hte.-Saône), *Hybocypeus*, *Pygaster*, *Trochotiara*, *Psæphechinus*, *Balanocr.*, *Pentacr.*; PETITCLERC (240): *Pygaster* n. sp. and *Galeropygus*; PETITCLERC (239).—“Sauceischichten” near Gelterkinden, Basle, *Asterias*, *Pentacr.*, *Balanocr.*, *Rhabdocidaris*; BUXTORF (53) p. 48.—Zone of *Lioceras opalinum*: near Basle, *Pentacr.*, *Cidaris*; STRUEBIN (294) p. 332: near Gelterkinden, Basle, *Pentacr.*, *Cidaris*; BUXTORF (53) p. 35.
- d. **Lias**:—List of historical specimens of *Ech.* in Amer. Mus. Nat. Hist. from Tuomey and Holmes, 1857; WHITFIELD & HOVEY (321) p. 442.—Laila Mts. in Caucasus, *Pentacr.*; AMMON (11) pp. 771, 776.
- Upper, or Toarcian,—“Jurensis-mergel” (p. 31), also Middle or Charmouthian, beds of *Ammonites davoei* (p. 29): near Gelterkinden, Basle; BUXTORF (53).—(Domerian) N. of Brescia, *Pentacr.*, *Cidaris*; CACCIAMALI (54) p. 91.
- Lower, or Sinemurian,—Arran, *Pentacr.* in volcanic vent; NEWTON (222) p. 237.—“Arietenkalk” near Gelterkinden, Basle, *Pentacr.*, *Cidaris* (p. 27), *Gryphaea obliqua* beds, *Pentacr.* (p. 28); BUXTORF (53).—Zone of *Piloceras planorbe*, at Niederschoenthal, Switzerland, *Pentacr.*; STRUEBIN (295).—Apuan Alps, *Pentacr.*, *Eugeniocr.*; DE STEFANI (84A) p. 29.
- e. **Trias**:—Eagle Creek Mts. N. E. Oregon, *Pentacr.* columnals and *Ech.* fragments; LINDGREN (186).
- Upper,—St Cassian beds at Epolo in Bergamo, N. Italy, *Pentacr.*, *Cidaris*; TOMMASI (303) p. 52 & (304).—Apuan Alps, *Encr.*, *Pentacr.*, *Cidaris*; DE STEFANI (84A) pp. 11, 12, 17, 19.
- Middle,—of Spiti in Himalyas, *Traumatocrinus* limestone; KRAFFT (175) p. 208.—Muschelkalk, Nordbayern,—Bänke des *Pecten discites*, *Acoura* (p. 48), Spiriferinenbank im oberen Wellenkalk, Erlabrunn, and Schaumkalk, *Pentacr.* (pp. 41, 42), Untere Wellenkalk and Schaumkalk, *Encr.*, *Cidaris* (pp. 30, 42, 46); GRASSMUELLER (137).
- Lower,—Reptiliferous sandstone of Elgin, Warwickshire, and Shropshire, alleged pentagonal imprints of supposed Echinoderm origin; BURKHARDT (51). See also IV, K.

(iv) PALAEOZOIC.

- a. **General**:—Malay Peninsula, Pahang, columnals and brachials limestone, probably Palaeozoic (fide F. A. Bather) ; NEWTON (223).
- b. **Permian**:—Vacant.
- c. **Permo-Carboniferous**:—Lower Bowen, Lower Marine Series, Lehardt District, Central Queensland, *Tribrachioocr.*, *Crin.* column some $1\frac{1}{2}$ inch diam., and *Oph.* indet. ; DUNSTAN (101) pp. 11, 12, 25.
- d. **Upper Carboniferous**:—Lower Coal Measures, various loc. Fife and Kinross, *Crin.* ossicles (p. 223), *Actinoocr.* 1 (p. 222) ; PEARSON (235).
Padang in Sumatra, *Poteriocrinus* columnals ; FLIEGEL (112) p. 96.
Coal-measures at Des Moines, Ia., *Archaeocidaris*, *Eupachyocr.* ; KEYS (169) p. 330.—Coal Measures, Minersville, Neb., *Zeocr.* (p. 7).
Topeka Limest. and Shales, Kansas, *Archaeocidaris* (pp. 71, 72).
Delocr. (p. 79), also quotes lists from previous authors ; BEECHER (22).—Upper Coal Measures (Missourian), Thayer Shales of Kan City, differences of *Crin.* from those of Crawfordville Shales due to great lapse of time, now proved by discovery in Arkansas 20,000 feet of intervening beds ; KEYES (170).—Lower Part Upper Coal Measures on Kansas R., Pottawatomie Formation, horizons of spp. of *Archaeocidaris*, *Cromyocr.*, *Cyathocr.*, *Hydreionocr.*, *Ceriocr.*, *Erisocr.*, *Eupachyocr.*, *Phialocr.*, Douglas Formation, horizons of spp. of *Archaeocidaris*, *Hydreionocr.*, *Ceriocr.* ; BEEDER & ROGERS (23).
- e. **Lower Carboniferous**:—Development and distribution of *Crin.* faunas especially in N. America contrasted with those of other epochs ; GRATACAP (139) pp. 232-234.
Clyde drainage area, *Archaeocidaris*, *Melonechinus*, *Palaeochinus*, *Alveolocr.*, *Platycr.*, *Megistocr.*, *Parisocr.*, *Scaphiocr.*, *Poteriocr.*, *Zenocr.*, *Hydreionocr.*, *Scytaleocr.*, *Uloocr.*, *Rhodocr.*, *Chiridota*, *Ancistrum* SMITH (285).—Various localities for *Ech.* and *Crin.* in Clyde drainage area ; SMITH (286).—Shales and limestones of Arm. *Archaeocidaris*, *Poteriocr.*, *Rhodocr.* ; THOMPSON (301) pp. 24, 26.
—Calcareous Sandst. and Carbonif. Limest. of Fife and Kinross loc. for spp. of *Cupressocr.*, *Hydreionocr.*, *Platycr.*, *Poteriocr.*, *Astroocr.* [= *Zygocr.*], *Archaeocidaris*, *Achistrum*, *Chirodota* ; PEARSON (235) p. 222.
Pendleside group, Lancashire, *Palaeochinus* (pp. 352, 355), *Crin.* fragments passim ; HIND & HOWE (152).
Carboniferous Limestone, N. Wales, *Archaeocidaris*, *Actinoocr.*, *Hydreionocr.*, *Poteriocr.*, *Uloocr.* ; MORTON (218) p. 62.—Menai St. Caernarvon, *Poteriocr.* ; MORTON (216) p. 33.—Penmon and Puffin Id., Anglesey, *Paleochinus*, *Actinoocr.*, *Platycr.*, *Poteriocr.* ; MORTON (215) p. 31 and (217) p. 48.—Limestone of Pair (Clavier) Belgium V. L. a., *Actinoocr.* ; DESTINEZ (93) p. 21.—Apuan Alps, *Actinoocr.* & columnals ; DE STEFANI (84A) p. 8.
Upper Tournaisian of Igli and Taghit in Sahara, *Rhodocr.*, *Poteriocr.* FICHEUR (110) p. 922.—Igli, columnals of *Poteriocr.* cf. *crassum* JOLLAUD (165) p. 399.
List of historical specimens of *Crin.*, *Blast.*, and *Ech.* in Amer. Mus. Nat. Hist., with corrected horizons and loc. ; WHITFIELD & HOWE (321) pp. 362-372, 482.
Kaskaskia group,—Indiana, *Scaphiocr.* ; ROWLEY in GREENE (141).—E. Tennessee and Kentucky, *Pentremites* ; ROWLEY in GREENE (142).

- Lower Burlington Limestone, Missouri, *Lophoblastus*, *Carpenteroblastus*, *Aorocr.*; ROWLEY (267).
- Kinderhook Group, Sac limestone, near Springfield, Mo., *Platycr.*, *Dichocr.*, *Schizoblastus*; WELLER (318) p. 136.
- Upper Chouteau beds, Missouri, *Lophoblastus*; ROWLEY (267) p. 345.
- Below Olean conglomerate at Warren, Pa., *Agelacr. beecheri*, *ibid.* and above Wolf Creek conglomerate at Mt. Moriah, N. Y., *Agelacr. buttsi*: n. spp.; CLARKE (69) pp. 195, 196.
- f. Devonian**:—British *Ech.*, *Ast.*, *Oph.*, *Crin.*, historical specimens; ALLEN (7) p. 197.
- Upper,—Elbersreuth, Nordbayern, *Cyathocr.*?, *Taxocr.*?, *Melocr.*, *Scyphocr.*, *Rhodocr.*; GRASSMUELLER (137) p. 15.—Tuff-breccie von Langenauach, *Melocr.*; DREVERMANN (98) p. 180.
- Middle,—Wissenbacher Schiefer in nordl. Oberharz, *Thalloocr.*, *Triacr.* (p. 127), *Calceola* Schiefer in nordl. Oberharz, *Cupressocr.*, *Rhipidocr.* (p. 97); BEUSHAUSEN (27).—*Calceola sandalina* beds in W. Sahara, *Rhodocr.*; FLAMAND (111).—Ensekalk of the Kellerwald, *Tiaracr.*; JAEKEL in LOTZ (194).
- Lower,—Emsian (= Coblenz-schichten), Poudingue de Burnot, Condroz, Belgium, *Cyathocr.*; DORLODOT (95) p. 174.—Psammites at Hestroy and Burnot, Belgium, *Cyathocr.*; PIERPONT (243) p. 169.—Upper Coblenzian, Laubach near Coblenz, *Hystriocr.*; FOLLMANN (114).—Kahlebergssandst. beds with *Spirifer speciosus* in nordl. Oberharz, *Cupressocr.*, *Ctenocr.*, *Rhipidocr.*; BEUSHAUSEN (27) pp. 41, 77.—Ivovik, Servia, *Ctenocr.*; RADOVANOVIC (251).—Siegener Grauwacke, *Agelacr. rhenanus*; FRECH (120) p. 318.
- Upper,—Charlestown, Ind., n. spp. of *Megistocr.*, types in coll. Greene; ROWLEY in GREENE (142).—Chemung sandstones of New York and Pennsylvania, *Lepidodiscus alleganius*, n. sp.; CLARKE (69) p. 194.
- Middle,—Hamilton group, Charlestown, Ind.: *Gennaeocr. carinatus* n. sp.; WOOD (330): n. spp. of *Aorocr.*, types in coll. Greene; ROWLEY in GREENE (142).—Marcellus Shales, Stafford Limest., New York State, *Nucleocr. lucina*; CLARKE (68) p. 133.
- g. Silurian**:—Wenlockian,—Tortworth, Glo'stershire, *Periechocr.* (p. 273), also "Crinoid-remains" in various exposures of Silurian rocks; MORGAN & REYNOLDS (209).—Bed c of Lindström (Wenlock) Mulde, Gotland, *Entrochus*, *Trochitae*; BATHER in CHAPMAN (57) p. 144.—E 2, Steinhorn im Kellerwalde, *Scyphocr.*; DENCKMANN (92) p. 197.—Hautes-Corbières (Aude) *Scyphocr.*; BRESSON (44) p. 61.
- Llandoveryan of Belgium, as in (219) Zool. Rec. 1900; MALAISE (200).
- Lower Helderberg at Schoharie, N. Y., distribution of *Homocr.*, *Mariocr.* (long stems), *Lepadocr.*, *Aspidocr.*; STEVENSON (291) pp. 368, 370, 372.
- Niagaran,—Niagara, list of *Cyst.* and *Crin.* which do or "may" occur there, mainly after J. Hall; GRABAU (135) pp. 150–160.—Laurel Limest. of Kentucky and Tennessee, *Pisocr.*; FOERSTE (113) pp. 399, 411.—Waldron beds at Newsom, Tenn., *Periechocr.*, *Macrosgylocr.*, *Mariocr.*, *Thysanocr.*, *Lecanocr.*, *Melanocr.* [sic], *Lyriocr.*, *Eucalyptocr.*, *Stephanocr.*, *Stribalocystis*, all identified by F. SPRINGER; FOERSTE (113) p. 443.
- h. Ordovician**:—Locc. and horizons of *Cyst.* esp. *Mesites* and *Echinoencr.* in E. Baltic provinces; LAMANSKY (178) pp. 250, 252, 268.—Horizons of Scandinavia and E. Baltic provinces compared, with lists of *Cyst.*, *Crin.*, etc.; LAMANSKY (179).—Echinoderma of Girvan District, Scotland, esp. *Echinospheera* in Llandeilo beds and *Pleurocystis* in Upper Caradoc beds; PEACH et al. (236) p. 431.

- Caradoc of Belgium, as in (219) Zool. Rec. 1900; MALAISE (200).
 Brandschiefer, Esthland, *Dendrocystis rossicus* n. sp., Vaginatenk
 St Petersburg, *Rhipidocystis gigas* n. g. et sp.; JAEKEL (162)
 Etage 4aβ Ampyckalk, Christiania, *Echinospaera*; BIRLITZ
 (29) p. 27.
 Grès à *Calymene tristani*, Anse de Vauville, Manche, *Asocr.*; BIRLITZ
 (28) p. 153.
 Bohemia, *Mitrocystis lata* n. sp., *Mitrocystella barrandei* n. g. et sp.;
 JAEKEL (162).—d 3 and d 4 Kněží Hora, Staňkovka, Bohemia,
Craterina, *Aristocystis*, *Encrinites*; ŽELÍZKO (335) pp. 228, 230.
 Burma, *Echinospaera* (p. 33), *Mimocystis* (p. 34); LA TOUCHE (184).
 —N. Shan States, Burma, Red crinoid beds, *Echinospaera* (pp. 88, 89),
 Nyangbaw beds, large *Crin.* (pp. 82, 88, 89), Naungkangyi beds,
Mimocystis (pp. 83, 91, 92); LA TOUCHE (184), see also DATTA (190)
 pp. 107, 113, 117.
 Manitoba, *Glyptocr.*, *Glyptocystis*, *Taeniaster*, spp. indett.; DOWD
 (97) p. 49.—Hudson River Valley, N. Y. Lorraine beds, *Glyptocr.*
 (p. 514), *Heterocr.* (p. 516), Middle Trenton, *Schizocr.* (pp. 516, 536);
 RUEDEMANN (268).—Trenton Limest., localities near Ottawa,
 (p. 167), ditto and Chazy Limest. near Montreal (p. 173), *Crin.*
 and *Cyst.*; AMI (8).—Chazy Limest., Montreal, *Canadocystis* n. sp.;
 JAEKEL (162).
 k. **Cambrian**:—Bohemia, *Ceratocystis* n. g., France and Spain, *Trochocystis*
occidentalis; JAEKEL (162).—Acadian of Montagne Noire, *Trochocystis*;
 BERGERON (26) pp. 626, 631, 682.—Paradoxides beds, La Cabitza,
 Sardinia, *Trochocystis*†; POMPECKJ (245) pp. 1, 9.
 Upper Cambrian of S.E. Missouri, *Cyst.* or *Crin.* columnals; BEECHER
 (21).

IV. SYSTEMATIC†.

(A).—ECHINODERMA IN GENERAL.

Phylum *Archicoelomata* incl. classes *Archichorda*, *Echinodermata*, *Bryozoa*,
Chaetognatha, *Brachiopoda*; *Echinodermata* divided into 5 orders:
Ast., *Oph.*, *Ech.*, *Crin.*, *Hol.*; MASTERMAN (203) pp. 170–176.—*Echinodermata*
 divided into two sub-phyla: *Eleutherozoa* and *Pelmatozoa*,
 which the latter are subdivided into A. normally developed forms
 so-called *Crinoidea*, Classes, *Cladocrinoidea*, *Pentacrinoidea*, B. aberrant
 types, Classes, *Cystoidea*, *Blastoidea*, *Carpoidea* **nov.**, C. indifferent
 type, *Thecoidea* [= *Edrioasteroidea*]; JAEKEL (162). [*F* *Carpoidea* see under
Cystoidea IV, G.]

Stelliformia, **nom. nov.** to include *Asteroidea* and *Ophiuroidea*; BRITISH
 MUSEUM (45) p. 114.

(B).—HOLOTHURIOIDEA.

General discussion of classification of *Hol.*, for principles see II, A, i
 resulting in the following scheme, in which the genera are only those

† A dagger prefixed to the trivial name of a species indicates that it is fossil;
 prefixed to the name of the author, it denotes that the reference is to the species
 a fossil state; prefixed to the name of a genus, it indicates that all species of the
 genus here recorded are fossil, and the † is therefore not repeated before each
 name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted
 immediately before.

A name and reference quoted without further statement [e.g. *Ankyroderma spinosum*;
 SLUTTER (284) p. 120] indicate that the quoted author's statement refers merely
 to locality or some question of slight importance. Further information can usually
 be gleaned from the cross-references under TITLES.

represented in the 'Siboga' collections: Ord. i. *Actinopoda*, Fam. 1. *Holothuriidae*, Subfam. a. *Holothuriinae* [incl. *Synallactinae*], *Holothuria*, *Labidodemas*, *Muelleria*, *Mesothuria*, *Stichopus*, *Bathyplores*, *Bathyerpystikes*, *Paelopatides*, *Synallactes*, *Meseres*, *Pseudostichopus*: Anhang: Elpidienähnliche *Holothuriidae*, Subfam. b. *Psychropotinae*, *Benthodytes*, Subfam. c. *Deimatinae*, *Deima*, *Scotodeima*, *Laetmogone*, *Illydaemon*, *Pannychia*, *Peniagone*, *Scotoanassa*, *Enypniastes*, Fam. 2. *Cucumariidae*, *Cucumaria*, *Thyone*, *Colochirus*, *Psolus*, *Psolidium*, *Pseudocucumis*, *Orcula*, *Phyllophorus*, *Sphaerothuria*, Fam. 3. *Molpadiidae*, *Molpadia*, *Haplodactyla*, *Trochostoma*, *Ankyroderma*. Ord. ii. *Paractinopoda*, Fam. *Synaptidae*, *Euapta*, *Synapta*, *Labidoplax*, *Chondrocloea*, *Protankyra*, *Chirodota*, *Sigmodota*; SLUITER (284).—Keys for identification of spp. of N. American *Hol.*, for genera see III, A, ii & iv; CLARK (65).

†*Achistrum*, v. *Ancistrum*.

Actinopyga Brown, syn. of *Mülleria*; CLARK (65) p. 484.

Ananus holothurioides, Sluiter's views as to ♂ nature appear confirmed by *Mesothuria*; THÉLÉ (298) p. 5.

Anaperus Trosch., syn. of *Thyone*; CLARK (65) p. 484.

†*Ancistrum*:—*A. nicholsoni*; SMITH (285). *Achistrum nicholsoni* [sic]; PEACH (235) p. 223.

Ankyroderma danielsseni, and young (p. 120), *A. dispar* n. sp., 462 metres (p. 122, pl. x), *A. perforata* n. sp., 330–1886 metres (p. 121, pl. x), *A. spinosum* (p. 120), *A. tridens* n. sp., 330–462 metres (p. 122, pl. x): Indian Archipelago; SLUITER (284).

Auricularia in general, *A. Synaptae digitatae* (p. 6 & fig.), *A. Cucumariae* (p. 7 & fig.), *Auricularia* assigned to *Holothuria tremula* by Dan. & Kor. probably belongs to a *Dendrochirote* (p. 8 & fig.), *A. Psoli* (p. 8 & fig.); MORTENSEN (214).

Bathyerpustikes, n. g. of *Synallactinae*, with genotype *B. punctatus* n. sp., Indian Archipelago, 310–400 metres; SLUITER (283) p. 6.

Bathyerpustikes, spelling corrected and diagnosis, *B. punctatus*, redescr.; SLUITER (284) p. 37, pl. viii.

Bathyplores monoculus n. sp., Indian Archipelago, 310–462 metres; SLUITER (283) p. 3, redescr.; (284) p. 35, pl. viii. *B. phlegmaticus* n. sp., Indian Archipelago, 397 metres; SLUITER (283) p. 4, redescr., (284) p. 36, pls. ii, viii. *B. rubicundus* n. sp., Indian Archipelago, 56–450 metres; SLUITER (283) p. 2, redescr., intermediate betw. *Stichopus* and *Bathyplores*; (284) p. 34, pls. iii, viii. *B. sulcatus* n. sp., Indian Archipelago, 450–924 metres; SLUITER (283) p. 1, redescr.; (284) p. 32, pl. viii.

Benthodytes hystrix n. sp., Indian Archipelago, 2798 metres; SLUITER (283) p. 19, redescr.; (284) p. 59, pls. iv, ix. *B. salivorus* n. sp., Indian Archipelago, 521 metres; SLUITER (283) p. 19, redescr., no spicules; (284) p. 58. *B. sibogae* n. sp., Indian Archipelago, 694–1914 metres; SLUITER (283) p. 17, redescr.; (284) p. 55, pls. i, ix, x.

Botryodactyla Ayres, syn. of *Cucumaria* (p. 484), *B. affinis* and *B. grandis* Ayres, synn. of *C. frondosa*; CLARK (65) p. 486.

Capheira, relations to *Holothuria*; SLUITER (284) p. 5.

Caudina arenata; CLARK (65) p. 490: WHITEAVES (320) p. 47.

Cheiridota et *Cheirodota*, vide *Chiridota*.

Chiridota:—†*C.* sp., spicules, Turonian and Danian; GEINITZ (129) p. 289. *C. brevis* Huxley, syn. of *Myriotrochus rinki* (p. 485), *C. discolor*, probably = *C. laevis* (p. 489); CLARK (65). *C. laevis*; CLARK (65) p. 489: WHITEAVES (320) p. 47. †*C. primaeva*; SMITH (285). *C. rigida*, slight differences from type; SLUITER (284) p. 133. *C. robertsoni*; SMITH (285). *C. rotifera*; CLARK (65) p. 489: habitat, size, viviparous; CLARK (64) pp. 341, 345. *C. rufescens*; SLUITER

- (284) p. 133. *C. studeri*; HÉROUARD (150) p. xlii. *C. tigillum* Sel. syn. of *C. laevis*; CLARK (65) p. 486. + *C. traquairi*; PEACH (25) p. 223: an Elpidiid, not near *Chiridota*; SMITH (285). *C. typicum* Sel., syn. of *C. laevis*; CLARK (65) p. 486.
- Chondroclaea albopunctata* n. sp., Saleyer Reef (p. 127), *C. aspera* n. sp. reef on W. coast of Gebe (p. 128, pl. x), *C. beselii* (p. 126), *C. indianus* maintained (p. 125), *C. lactea* (p. 126), *C. nigra* (p. 125), *C. parva* (p. 126), *C. recta*, gut almost straight (p. 125), *C. reticulata*, a giant specimen (p. 127), *C. virgata* n. sp., 18 metres (p. 128, pl. i), *C. vitellus* (p. 126): Indian Archipelago; SLUITER (284).
- Cladodactyla*, *C. albidia*, and *C. pentacta* of Brandt, syn. of *Cucumaria* *C. populifer*, and *C. frondosa*; CLARK (65) pp. 484, 485.
- Colochirus*, perhaps a growth-stage of *Cucumaria*; HÉROUARD (150) p. xlii. *C. challengeri*, slight differences fr. type (p. 97, pl. vii), *C. cucumaria* (p. 100), *C. dotiolum* (p. 99), *C. gazellae* (p. 98, pl. ii), *C. luteus* n. sp. Indian Archipelago, 55-91 metres (p. 100, pls. ii, vii); SLUITER (284). *C. ocnoides*, vide *Ludwigia*. *C. quadrangularis*, albino from 73 metres (p. 99), *C. scandens* (p. 100), *C. squamatus* n. sp., Indian Archipelago, 112 metres, covered with imbricating scales, resembles *Pectidius* (p. 101, pl. viii); SLUITER (284).
- Cucumaria albidia* Sel.; CLARK (62) p. 165 & (65) p. 492. *C. albidia* (Brandt), perh. = *C. populifer* Stimps.; CLARK (62) p. 170. *C. albidia* Ludw., syn. of *C. populifer*; CLARK (65) p. 485. *C. calcigera*; CLARK (65) p. 492: evidence of former circumpolarity; CLARK (62) p. 165. *C. canescens* (p. 81), *C. capensis*, age-differences (p. 80, pl. vii), *C. cataphracta* n. sp., Lamakera reef, Indian Archipelago (p. 82, pl. vii); SLUITER (284). *C. chronhjelmi*; CLARK (62) p. 165 & (65) p. 492. spicules descr.; CLARK (63) p. 334, pl. iv. *C. conciliatrix* n. sp. Indian Archipelago, 13 metres, resemblance to *Colochirus*; SLUITER (284) p. 89, pl. vii. *C. convergens*, n. sp., Porto-torres in Navarin Is. HÉROUARD (150) p. xlii, no fig. *C. curata* n. sp., California, care a brood; COWLES in CLARK (65) p. 492: also as *C. sp. nondescr.* CLARK (62) p. 165. *C. duriuscula* n. sp., 16-80 metres (p. 87, pl. vii). *C. falcata* n. sp., 50-90 metres, resemblance to *Echinocucumia*, which genus is not accepted (p. 91, pl. vii): Indian Archipelago; SLUITER (284). *C. fallax* Ludw., syn. of *C. miniata*; CLARK (65) p. 485. *C. fastigata* n. sp., Indian Archipelago, 50-90 metres; SLUITER (284) p. 86, pl. vii. *C. frondosa*; CLARK (65) p. 492: KNIPOVITSCH (171) (f) CLARK (62) p. 170: colour; RANKIN (252) p. 169. *C. fuscicola*; TODD (302) p. 365. *C. fusiformis* Des., syn. of *Thyone unisemita*; CLARK (65) p. 486. *C. glacialis*, see III, A; THÉEL (297). *C. hyndmani*; TODD (302) p. 365. *C. imbricata* (Semp., as *Ocaus*) incl. *O. typicus* and *O. javanicus*; SLUITER (284) p. 79. *C. lactea*, popular account; NEWBIGIN (221) p. 143. *C. laevigata*, descr.; HÉROUARD (150) p. xlii: see III, A; THÉEL (297). *C. longipeda*, differences from type; SLUITER (284) p. 80. *C. lubrica* nom. nud.; CLARK (62) p. 165: n. sp., Puget Sound; CLARK (63) p. 334, pl. iv; CLARK (65) p. 492. *C. mendax*, differences from type, due to youth; HÉROUARD (150) p. xlii. *C. miniata*; CLARK (65) p. 493: (f); CLARK (62) p. 166. *C. minuta*; CLARK (65) p. 492. *C. mucronata* n. sp., Indian Archipelago, 73-82 metres; SLUITER (284) p. 88, pl. vii. *C. muuuta* n. sp., Indian Archipelago, 90-560 metres; SLUITER (284) p. 85, pl. vii. *C. nigricans*; CLARK (65) p. 492. *C. nigricans* (Brandt), perh. = *C. piperata* Stimps.; CLARK (62) p. 171. *C. nocturna* n. sp., Indian Archipelago, 204-959 metres, growth-changes in spicules; SLUITER (284) p. 92, pls. vii, viii. *C. pentactes*; TODD (302) p. 365. *C. planici, Auricularia*; MORTENSEN (214) p. 7 & fig. *C. populifer*; CLARK (65) p. 492. *C. pulcherrima*; CLARK (65) p. 493. *C. punctata*, habitat;

- CLARK (64) p. 342. *C. quinquesemita*; CLARK (65) p. 492. *C. redimita* n. sp., 112 metres (p. 90, pl. viii), *C. reducta* n. sp., 216 metres (p. 84, pl. vii), *C. sordidata* n. sp., 275 metres (p. 83, pl. vii), *C. tricolor* n. sp., 13 metres (p. 81, pls. i, vii), *C. vilis* n. sp., 10-90 metres (p. 86, pl. vii): Indian Archipelago; SLUITER (284) p. 86, pl. vii.
- Cuvieria* Peron (?), syn. of *Psolus* (p. 484), *C. sitchuensis* Brandt, syn. of *P. fabricii* (p. 486); CLARK (65).
- Deima validum*; SLUITER (284) p. 60.
- Echinocucumis* rejected; SLUITER (284) p. 91. *E. asperrima*, descr.; CLARK (66) p. 257, pl. xvi.
- Echinostoma* Semper, syn. of *Eupyrus* (p. 484), *E. hispidum* Semper, syn. of *E. scaber* (p. 485); CLARK (65).
- Elpidia* sp.; KOLTHOFF (174) p. 210. *E. glacialis*; KNIPOVITSCH (171): photographs; KOLTHOFF (174) p. 96.
- Embolus* Sel., syn. of *Trochostoma* (p. 484), *E. pauper* Sel., syn. of *T. ooliticum* (p. 485); CLARK (65).
- Enypniastes eximia* Theel, redescri., gut almost uncoiled; SLUITER (284) p. 77, pls. ii, x.
- Eupta glabra*, *E. godefroyi* (p. 123), *E. grisea*, *E. serpentina* (p. 124); SLUITER (284).
- Eupyrus scaber*; CLARK (65) p. 490: WHITEAVES (320) p. 46.
- Haplodactyla ecalcareo* n. sp., Indian Archipelago, under 36 metres, no spicules (p. 118), *H. hyalooides* (p. 117), *H. pellucida* Semper (as var. of *H. molpadioides*) (p. 117), *H. punctata* (p. 118); SLUITER (284).
- Holothuria*:—†*H.* sp. of Fritsch, "Priesener Schichten" f. 150, [probably Annelid] containing *Cyclolepis agassizi*; HINTERLECHNER (153) p. 473.
- H. albiventer*; SLUITER (284) p. 13. *H. anapinusa*, v. *Stichopus*. *H. aphanes*, not young of *H. impatiens* (p. 16), *H. argus*, variation in spicules (p. 12); SLUITER (284). *H. atra*; CLARK (65) p. 495: & var. *amboinensis*; SLUITER (284) p. 8. *H. botellus* Sel., syn. of *Holothuria impatiens*; CLARK (65) p. 485. *H. californica* Stimps. is a *Stichopus*; CLARK (62) p. 164. *H. captiva*, habitat, ejects Cuvierian organs; CLARK (64) p. 342: pedicels, papillae, and tentacles; CLARK (66) p. 257. *H. cinerascens* (p. 9), *H. coluber* (p. 13), *H. curiosa* (p. 10); SLUITER (284). *H. densipedes*, n. sp., Porto Rico; CLARK (66) p. 267, pl. xvii. *H. difficilis* (p. 10), *H. edulis*, 30 cm. long (p. 8); SLUITER (284). *H. floridana* Pourt., syn. of *H. atra*; CLARK (65) p. 485. *H. fusco-rubra*, almost black specimen; SLUITER (284) p. 15. *H. glaberrima*; CLARK (66) p. 258. *H. graeffii*; SLUITER (284) p. 8. *H. grisea*; CLARK (66) p. 258. *H. impatiens*; loc. cit.: CLARK (65) p. 495: "glandes tubuleuses" of BORDAS 1899, are developing genital tubules; THEEL (298) p. 21: (p. 9), specimens so described by Oestergren are probably young of *H. aphanes* (p. 16); SLUITER (284).
- H. infesta* n. sp., Indian Archipelago, 30 metres, perhaps young; SLUITER (284) p. 20, pl. vi. *H. intestinalis*; TODD (302) p. 366 (see also *Mesothuria*). *H. kurti*, notes on spicules, slight differences from type (p. 14, pl. vi), *H. lagoena* (p. 16), *H. lumperti* Ludw. (p. 15), *H. lubrica* (p. 8), *H. maculata* (p. 9), *H. marenzelleri* (p. 7), *H. marginata* n. sp., Indian Archipelago, 148 metres (p. 20), *H. marmorata* (p. 12); SLUITER (284). *H. mexicana*; CLARK (66) p. 258. *H. mitis* n. sp., Indian Archipelago, 0-18 metres, no spicules in skin, and very slight oesophageal ring (p. 136, pl. vi), *H. modesta* (p. 14), *H. monocaria*, notes on a large example from 275 metres (p. 11), *H. olivacea* (p. 17), *H. oxurropa* (p. 14), *H. pardalis* (p. 12); SLUITER (284).
- H. pentacta* O. F. Müll., syn. of *Cucumaria frondosa*; CLARK (65) p. 485. *H. perricar*, a large specimen with peculiar colouring; SLUITER (284) p. 9. *H. princeps*; CLARK (65) p. 495. *H. rathbuni*,

- habitat, colour; CLARK (64) p. 343: and young (?); CLARK (66) p. 22 pl. xvii. *H. rigida*; CLARK (65) p. 495: its resemblances to *Stichopus* SLUITER (284) p. 15. *H. scabra*, colour-variation (p. 11), *H. slateri* slight variations from type (p. 10), *H. squamifera*, habitat (p. 7), *H. submersa* n. sp., Indian Archipelago, 247 metres (p. 18, pls. i, vi) SLUITER (284). *H. surinamensis*; CLARK (64) p. 344 & (66) p. 22. *H. tenuissima*, only 60 mm. long; SLUITER (284) p. 14. *H. tremula* v. sub *Auricularia*. *H. triremis* n. sp., Indian Archipelago, on Loo para reef; SLUITER (284) p. 19, pl. vi. *H. tubulosa*, general anal specially the gut and vascular systems, process of nutrition; CORRIEN (70): see II, F, viii; RAWITZ (255 & 256): osmosis; BOTTALDO (32) p. 63. *H. vagabunda* (p. 12), *H. verrucosa* (p. 13), *H. vitiensis* (p. 12) SLUITER (284).
- Hypsilothuria* v. *Sphaerothuria*.
- Ilyodaemon abstrusus* n. sp., Indian Archipelago, 694-959 metres; SLUITER (283) p. 24: redescri.; SLUITER (284) p. 69, pls. iv, ix. *I. fimbriata* n. sp., Indian Archipelago, 827 metres; SLUITER (283) p. 23 redescri., entails extension of generic diagnosis in direction of *Laetmogone*; SLUITER (284) p. 67, pl. ix: n. var. *magnus*, 709 metres SLUITER (283) p. 24: redescri.; SLUITER (284) p. 69. *I. maculatus* SLUITER (284) p. 66, pl. ii.
- Kolga hyalina*; ØSTERGREN (231): photograph; KOLTHOFF (174) p. 2 & p. 210.
- Labidodemas egestosum* n. sp., Indian Archipelago, Saleyer reef, n stereom (p. 22), *Labidodemas semperianum*, incl. *L. selentianum* & *L. dubiosum*, growth-changes, variation in spicules (p. 21); SLUITER (284).
- Labidoplax incerta*; SLUITER (284) p. 125.
- Laetmogone enisus* n. sp., Indian Archipelago, 204 metres; SLUITER (283) p. 22: redescri., occurs on hard coral sand; SLUITER (284) p. 62 pls. ii, ix. *L. interjacens* n. sp., Indian Archipelago, 794 metres SLUITER (283) p. 21: redescri.; SLUITER (284) p. 64, pl. ix. *L. violaceum* differences from type, perhaps due to age (p. 62), *L. wyville-thomsoni* (p. 63); SLUITER (284) p. 63.
- Leptosynapta* Verrill, syn. of *Synapta*; CLARK (65) p. 484.
- Liosoma* Brandt, syn. of *Chiridota*, & *Liosoma* Stimpf, syn. of *Trochostoma* (p. 485), *L. sitchaense* Brandt, syn. of *Chiridota discolor* (p. 486) CLARK (65).
- Lophothuria* Verrill, syn. of *Psolus*; CLARK (65) p. 485. *L. fabricii* WHITEAVES (320) p. 45.
- Ludwigia* n. g. of *Cucumariidae* with genotype *L. ocnoides* Dendy (a *Colochirus*) and anatomical description of sp., meristic var.; REIFFE (258).
- Meseres involutus* n. sp., Indian Archipelago, 567-918 metres; SLUITER (283) p. 11: redescri.; SLUITER (284) p. 49, pl. viii. *M. hyaligera* n. sp., Indian Archipelago, 204 metres; SLUITER (283) p. 12: redescri. SLUITER (284) p. 50, pl. v. *M. peripatus* n. sp., Indian Archipelago, 794-1200 metres; SLUITER (283) p. 10: redescri.; SLUITER (284) p. 48 pls. v, viii.
- Mesothuria bifurcata* n. sp., Antarctic 71° S., 89° W.; HÉROUARD (150) p. xxxix, no fig. *M. holothurioides* n. sp., Indian Archipelago, 567 metres; SLUITER (283) p. 14: redescri.; SLUITER (284) p. 28, pl. ix. *M. intestinalis* is ♂, see II, B, i, b, 12; THEEL (298), (see also *Holothuria*). *M. lactea*, spicular variations, the sp. is not a *Synallactes* as Hérouard says, nor can it support the genus *Zygothuria* Perrier; SLUITER (284) p. 25. *M. marginata* n. sp., Indian Archipelago, 655-924 metres; SLUITER (283) p. 13: redescri., perh. should be new genus; SLUITER (284) p. 26, pl. viii. *M. multipes*, slight differences

- from type in spicules: *M. murrayi*; SLUITER (284) p. 24. *M. oktak-nemus* n. sp., Indian Archipelago, 1158 metres; SLUITER (283) p. 14: redescri.; SLUITER (284) p. 27, pl. viii.
- Molpadia demissa* n. sp., Indian Archipelago, 330 metres; SLUITER (284) p. 116, pls. iii, x. *M. oolitica* Sel., syn. of *Trochostoma boreale* & *T. ooliticum* (p. 485), *M. turgidum* Verrill, syn. of *T. boreale* (p. 486); CLARK (65).
- Muelleria agassizii*; CLARK (65) p. 494. *M. echinites* (p. 24), *M. lecanora* (p. 23), *M. maculata*, variations in colour and warts (p. 23), *M. mauritiana* (p. 24), *M. miliaris*, colour-variations (p. 23); SLUITER (284). *M. parvula*; CLARK (65) p. 494.
- Myriotrochus* sp.; ÖSTERGREN (231). *M.* sp. nondescr. with parasite; KOLTHOFF (174) p. 210. *M. rinki*; CLARK (65) p. 490: KNIPOVITSCH (171); RANKIN (252) p. 170: WHITEAVES (320) p. 47.
- Ocnus* Forbes, syn. of *Cucumaria*; CLARK (65) p. 485: a growth-stage of *Cucumaria*; HÉROUARD (150) p. xlv: see *Cucumaria imbricata*. *O. ayresii* Stimps., syn. of *Cucumaria minuta*; CLARK (65) p. 485.
- O. javanicus*, Sluiter's views as to ♂ nature appear confirmed by *Mesothuria*; THEEL (298) p. 5.
- Orcula barthi*; CLARK (65) p. 494: WHITEAVES (320) p. 46. *O. discrepans* n. sp., Indian Archipelago, under 36 metres (p. 110, pl. vi), *O. hypsi-pyrga* (p. 109); SLUITER (284). *O. punctata* Sel., syn. of *O. barthi*; CLARK (65) p. 485. *O. purpureo-punctata* n. sp., Indian Archipelago, 13 metres; SLUITER (284) p. 109, pl. vi.
- Paelopatides confundens*, measurements, intestinal diverticulum not found; SLUITER (284) p. 39. *P. fusiformis* n. sp., Indian Archipelago, 883-2050 metres; SLUITER (283) p. 7: redescri., no stereom, caecum on first gut-limb; SLUITER (284) p. 42. *P. illicitus* n. sp., Indian Archipelago, 2000 metres; SLUITER (283) p. 9: redescri.; SLUITER (284) p. 45, pl. ix. *P. megalopharynx* n. sp., Indian Archipelago, 521 metres; SLUITER (283) p. 7: redescri., differences from generic norm, no stereom; SLUITER (284) p. 40. *P. purpureo-punctatus* n. sp., Indian Archipelago, 538-1270 metres; SLUITER (283) p. 8: redescri., no stereom, caecum on first gut-limb; SLUITER (284) p. 43.
- Pannychia moseleyi*, showing differences from type; SLUITER (284) p. 71.
- P. multiradiata* n. sp., Indian Archipelago, 918 metres; SLUITER (283) p. 25: redescri.; SLUITER (284) p. 72.
- Peniagone discrepans* n. sp., Indian Archipelago, 2053 metres; SLUITER (283) p. 27: redescri.; SLUITER (284) p. 75, pl. x. *Peniagone ecalcareia* n. sp., Indian Archipelago, 1310 metres; SLUITER (283) p. 26: redescri., no stereom; SLUITER (284) p. 74, pl. x. *Peniagone vignoni* n. sp., Antarctic, 71° 15' S., 87° 39' W.; HÉROUARD (150) p. xli, no fig.
- Peniagone vitrea*; SLUITER (284) p. 74.
- Pentacta* Jäger, syn. of *Cucumaria*; CLARK (65) p. 485. *P. calcigera* (p. 45), *P. frondosa* & *P. minuta* (p. 44); WHITEAVES (320). *P. piperata* Stimps., syn. of *Cucumaria nigricans*; CLARK (65) p. 485.
- Pentamera* Ayres, syn. of *Thyone*; CLARK (65) p. 485.
- Phyllophorus brocki*, slight differences fr. type (p. 111), *P. cebuensis* (p. 112); SLUITER (284). *P. drummondi*; TODD (302) p. 366. *P. holothurioides* (p. 111), *P. inflatus* n. sp., Indian Archipelago, 73 metres, resemblances to *Thyonidium* (p. 114, pls. ii, vi), *P. magnus* Ludw., redescri. from complete specimens (p. 112, pls. iv, vii), *P. schmeltzi*, a specimen 8 mm. long found in plankton. its age-differences descr. (p. 110); SLUITER (284).
- Protankyra asymmetrica*, spicules (p. 129, pl. x), *P. bicornis* n. sp., 828 metres, difference from generic type (p. 131, pl. x), *P. challengerii*, n. var. *sibogae*, 1788 metres (p. 131, pl. iii), *P. innominata* (p. 129), *P. insolens* (p. 129), *P. ludwigi* (p. 130), *P. rodea* (p. 130), *P. sibogae*

- n. sp.*, 794 metres (p. 132, pl. x); *P. suspecta n. sp.*, 148 metres (p. 132, pl. x): Indian Archipelago; SLUITER (284) p. 132, pl. x.
- Pseudocucumis africana* (p. 107), *P. quinquangularis n. sp.*, Seta Ambon reefs (p. 108, pl. vi): Indian Archipelago; SLUITER (284) p. 16: redescr., intermediate between *Synallactis* and typical *Holothuriinae*; SLUITER (284) p. 53, pls. iv, ix.
- Pseudostichopus pustulosus n. sp.*, Indian Archipelago, 827-924 metres; SLUITER (283) p. 16: redescr., intermediate between *Synallactis* and typical *Holothuriinae*; SLUITER (284) p. 53, pls. iv, ix.
- trachus n. sp.*, Indian Archipelago, 798-883 metres; SLUITER (284) p. 15: redescr.; SLUITER (284) p. 52, pls. v, viii.
- Psolidium disjunctum n. sp.*, Indian Archipelago, 2798 metres; SLUITER (284) p. 105, pl. vi. *P. nutriens* (Clark) vide *Thyonopsis*; CLARK (62). *P. sphaericum n. sp.*, Indian Archipelago, 411-1158, resembles *Sphaerothuria*; SLUITER (284) p. 106, pl. vi.
- Psolus sp.*; KNIPOVITSCH (171). *P. belgicae n. sp.*, Antarctic, 70° 23' 82" 47' W.; HÉROUARD (150) p. xlv, no fig. *P. chitonoides n. sp.*, Puget Sound; CLARK (63) p. 335, pl. iii; CLARK (65) p. 491.
- fabricii*; loc. cit. *P. fimbriatus n. sp.*, Indian Archipelago, 304 metres; finger-like tentacles; SLUITER (284) p. 103, pl. vi. *P. granula* Ayres, syn. of *P. regalis* (p. 486), *P. laevigatus* Ayres, syn. *P. phantapus* (p. 485); CLARK (65). *P. parvatus n. sp.*, Indian Archipelago, 487 metres; SLUITER (284) p. 102, pl. vi. *P. phantapus* CLARK (65) p. 490; TODD (302) p. 366; WHITEAVES (320) p. 4.
- †SMITH et al. (287) p. 533: *Auricularia*; MORTENSEN (314) p. 5 & 6. *P. propinquus n. sp.*, Indian Archipelago, 69-91 metres; SLUITER (284) p. 104. *P. regalis* (p. 490), *P. squamatus* (p. 491); CLARK (65) p. cf. *squamatus et japonicus*; CLARK (62) p. 165.
- Rhipidothuria n. g.* of *Elpidiinae* with genotype *R. racovitzae n. g.* Antarctic, 71° S., 89° W., intermediate between *Parelpidia* & *Scaphopoda*; HÉROUARD (150) p. xl, no fig.
- Sclerodactyla* Ayres, syn. of *Thyone*; CLARK (65) p. 485.
- Scotoanassa incerta n. sp.*, Indian Archipelago, 538-724 metres; SLUITER (283) p. 28: redescr.; SLUITER (284) p. 76, pl. ix.
- Scotoderma protectum n. sp.*, Indian Archipelago, 1031 metres; SLUITER (283) p. 20: redescr., relations to *Elpidia*; SLUITER (284), p. 102, pls. ii, ix.
- Semperia* Lamp., syn. of *Cucumaria*; CLARK (65) p. 485: rejecte SLUITER (284) p. 82: is a growth-stage of *Cucumaria*; HÉROUARD (150) p. xlv.
- Sigmodota contorta*; SLUITER (284) p. 134.
- Sphaerothuria bitentaculata*, incl. *Ypsilothuria attenuata* Perr.; SLUITER (284) p. 115.
- Stereoderma* Ayres, syn. of *Thyone*; CLARK (65) p. 485.
- Stichopus ananas*, colour in life, incl. "*S. variegatus*" Saville-Kent, (1) Barr. Reef, p. 234, pl. xxxv, f. B (p. 30, pl. ii), *S. anapinusus* (Lam.) as *Holothuria* (p. 30); SLUITER (284). *S. budionotus*; CLARK (65) p. 494. *S. californicus* (Stimps.); loc. cit.: redescr.; CLARK (65) p. 164. *S. chloronotus* and *S. godeffroyi*; SLUITER (284) p. 31. *S. moebii*; CLARK (66) p. 257: incl. *S. diaboli* and *S. xanthomela*; CLARK (64) p. 342. *S. sitchuensis* (Brandt); CLARK (62) p. 171, & 6 p. 494. *S. tremulus*, relations to *Synallactinae* (p. 4), *S. variegatus* young, development of spicules (p. 31), *S. vastus* (p. 32); SLUITER (284).
- Synallactes lactea*, v. *Mesothuria*. *S. reticulatus, n. sp.*, Indian Archipelago, 310 metres; SLUITER (283) p. 9: redescr.; SLUITER (284) p. 46, pls. iii, viii.
- Synapta acanthia*, capture; CLARK (64) p. 341. *S. albicans* Sel., syn. of *S. inhaerens*; CLARK (62) p. 164, & (65) p. 485: (1), descr. and discussed, the specimens are possibly young; CLARK (63) p. 333, pl. v.

- S. ayresi* Sel., syn. of *S. inhaerens*; CLARK (65) p. 485. *S. buski*; TODD (302) p. 365: no pelagic larva; MORTENSEN (214) p. 6. *S. digitata*; TODD (302) p. 365: *Auricularia*; MORTENSEN (214) p. 6 & fig. *S. girardii* Pourt., and *S. gracilis* Sel., synn. of *S. inhaerens*; CLARK (65) p. 486. *S. inhaerens*; TODD (302) p. 365: FAUVEL (108) p. 81: CLARK (64) p. 345, & (65) p. 489: popular account; NEWBIGIN (221) p. 145: no pelagic larva; MORTENSEN (214) p. 6: evidence of former circumpolarity; CLARK (62) p. 164. *S. lappa*; CLARK (66) p. 259. *S. ooplax*; SLUITER (284) p. 124. *S. pellucida* Stmps. & Kurtz, syn. of *S. inhaerens* (p. 485), *S. pourtalesii* Sel., syn. of *S. vivipara* (p. 485), *S. roseola* (p. 489); CLARK (65), & habitat; (64) p. 341. *S. tenuis* Ayres, syn. of *S. inhaerens*; CLARK (65) p. 486. *S. viridis* Pourt. (= *S. pourtalesi* Sel.) is syn. of *S. vivipara*; loc. cit. & CLARK (64) p. 341. *S. vivipara*; CLARK (65) p. 489: protective green, incl. *S. pourtalesi* Sel.; CLARK (64) p. 341.
- Synaptula* Oerst., syn. of *Synapta*; CLARK (65) p. 485.
- Thyone briareus* (p. 494), *T. carolina* Sel., syn. of *T. briareus* (p. 485); CLARK (65). *T. castanea*, colour and spicules; SLUITER (284) p. 93. *T. cigaro* Trosch., syn. of *T. briareus*; CLARK (65) p. 485. *T. discolor* n. sp., Indian Archipelago, 13-91 metres; SLUITER (284) p. 96. *T. elongata*; CLARK (65) p. 494. *T. fusus*; TODD (302) p. 366. *T. fusus* Verrill, syn. of *T. scabra* (p. 486), *T. gemmata* (p. 494); CLARK (65). *T. mirabilis*, no spicules (p. 93, pl. i), *T. puitosa* n. sp., Indian Archipelago, 310 metres, outwardly resembling *Mesothuria* (p. 94, pl. vi); SLUITER (284). *T. raphanus*; TODD (302) p. 366. *T. rubra* n. sp., Monterey B., California, viviparous, young descr.; CLARK (62) p. 166 & text-figg., & (65) p. 494. *T. sacellus*; SLUITER (284) p. 93. *T. scabra*; CLARK (65) p. 494: WHITEAVES (320) p. 46. *T. spadix* n. sp., Indian Archipelago, under 40 metres; SLUITER (284) p. 97, pl. vi. *T. tenella* Sel., syn. of *T. briareus* (p. 486), *T. unisemita* (p. 494); CLARK (65). *T. vitrea* n. sp., Indian Archipelago, 310 metres, no spicules but forms sheath of *Globigerina* tests, as in *Meseres*; SLUITER (284) p. 95, pl. vi.
- Thyonella* Verrill, syn. of *Thyone*; CLARK (65) p. 485.
- Thyonepsolus* n. g. with genotype *T. nutriens* n. sp., Monterey B., California, young in skin of back; CLARK (62) p. 169 & text-figg., & (65) p. 491: referable to *Psolidium*; LUDWIG in Abstract.
- Thyonidium glabrum* Ayres, syn. of *Thyone briareus* (p. 486), *T. musculosum* Ayres, syn. of *Thyone elongata* (p. 485); CLARK (65). *T. pellucidum*; WHITEAVES (320) p. 46. *T. productum*; loc. cit.: CLARK (65) p. 494.
- Trochinus* Ayres, syn. of *Chiridota*; *T. pallidus* Ayres, syn. of *C. laevis*; CLARK (65) p. 485.
- Trochoderma elegans*; ØSTERGREN (231).
- Trochostoma antarcticum*, descr.; HÉROUARD (150) p. xlvii. *T. arenicola*; CLARK (65) p. 490. *T. boreale*; ØSTERGREN (231): KNIPOVITSCH (171): probably incl. *Molpadia turgida* Verrill; CLARK (65) p. 490. *T. granulatum*; SLUITER (284) p. 118. *T. ooliticum*; WHITEAVES (320) p. 47: possibly = *T. boreale*; CLARK (65) p. 490. *T. scabrum* n. sp., with n. var. *spinosa*, Indian Archipelago, 310-918 metres; SLUITER (284) p. 119, pl. x. *T. turgidum*; WHITEAVES (320) p. 46.
- Ypsilothuria*, v. *Sphaerothuria*.
- Zygothuria* Perrier, not accepted; SLUITER (284) p. 25, vide *Mesothuria lactea*.

(C).—ECHINOIDEA.

Principle of classification of *Ech.*, division into *Regulares* and *Irregulares*, or *Endo-* and *Exocystu*, preferred to that adopted by Lambert; TORNQUIST (305).

- †*Acrocidaris abdaensis* n. sp., Cenomanian?, Lebanon, fragment of test; LORIEL (192) p. 24.
- †*Acropeltis aequituberculata*, young; SÉGUIN (277).
- †*Acrosalenia*:—*A. angularis* (p. 195), *A. decorata* (p. 126); RASPAIL (253).
A. cf. pisum; FOURNIER (116) p. 19. *A. spinosa*; BUXTORF (53) p. 56.
Alomma, distinguished from *Trochotiara*; LAMBERT in PETITCLEBC (240) p. 236.
- †*Amblypygus arnoldi*; CAREZ (55) p. 12.
- †*Amphiope*:—*A. agassizi* (p. 4), *A. ovalifera* (p. 11); FALLOT (106). *A. pedemontana*, descr.; AIRAGHI (1) p. 188, pl. xiii.
Amphipneustes Koehl. 1900, Antarctic genus of *Spatangidae adetinae*, allied to *Palaeopneustes* but showing affinities with *Stenonia* and *Linopneustes*: *A. lorioli* Koehl. descr.; KOEHLER (172) p. 12, pla. ii, v, vi.
- †*Ananchytes*, vide sub *Echinocorys*.
- †*Anapesus hungaricus* (Laube as *Echinus*) incl. *E. dux*; AIRAGHI (1) p. 174, pl. xix.
- †*Anorthopygus*:—*A. michelini*; FOURNIER (116) p. 23: limestone form passing into *A. orbicularis*, marl-bed form; CHOFFAT (61) p. 763. *A. orbicularis*; GROSSOUVRE (145) p. 4. *A. suborbicularis*; FOURNIER (116) p. 23.
- Arbacia punctulata*, see II, F, viii; GIES (133): variation; OSBORN (230): ovum; BOVERI (43) p. 635. *A. pustulosa*, see II, F, viii; WINKLER (328), VIGUIER (312 & 313): fertilisation (q.v.); BULLER (49): non-reaction to fresh-water; RIGGENBACH (261). *A. stellata*?; CLARK (63) p. 331.
- †*Arbacia*:—*A. fraasi* n. sp., Upper Burdigalian and Vindobonian, Geneffe, Egypt; GAUTHIER in FOURTAU (119) p. 63, pl. vi. *A. isseli* n. sp., Tortonian of Stazzano, type in Mus. geol. Genova; AIRAGHI (1) p. 176, pl. xix. *A. monilis*, v. *A. vinassai*. *A. parva* (Michelotti as *Echinus*) incl. *Psammechinus michelottii*, descr. (p. 175, pl. xix), *A. vinassai* n. sp. based on a specimen referred by Vinassa de Regny to *A. monilis* var. *depressa* (p. 176); AIRAGHI (1).
- †*Archaeocidaris*:—*A. sp.*; BEEDE & ROGERS (23) pp. 237, 242 247–249, 251. *A. agassizi*; BEEDE (22) pp. 77, 79. *A. edgarensis*; KEYES (169) p. 330. *A. munsteriana* and *A. scotica*; SMITH (285). *A. triserrata*?; BEEDE & ROGERS (23) p. 245. *A. urei*; PEACH (235) p. 223; SMITH (285): THOMPSON (301) pp. 24, 26, 30.
- †*Archiacia*:—*A. araidahensis* n. sp., Cenomanian, *Ostrea africana* beds, Aïn Araidah, Egypt (pp. 7, 18, pl. i), *A. pes cameli* n. sp. (ex Schweinfurth MS.), Cenomanian, *Ostrea africana* beds, near convent of St Paul, Galala el Kiblieh, Egypt (p. 19, pl. i); GAUTHIER in FOURTAU (119).
- Aspidodiadema nicobaricum* n. sp., near Nicobar Is., 296 metres; DÖRDLERLEIN (94) p. 21.
- Asthenosoma hystrix* and young (1); CLARK (66) p. 253.
- †*Astriclypeus integer*, incl. "*Echinodiscus bisperforatus* Leske" of Lebour 1885; YOSHIWARA (332) pp. 51, 60, 63.
- †*Brissoptagus caumonti*; CAREZ (55) p. 12.
- Brisopsis*:—†*B. borsonii*, descr. (p. 199, pl. xxiv), †*B. craverii*, descr. (p. 198, pl. xxv); AIRAGHI (1). †*B. excentrica* n. sp., Mid. Eocene, near Mokattam; GAUTHIER in FOURTAU (119) p. 52, pl. ii. †*B. forojuliensis* n. sp., Eocene, Col dei Soldi near Friuli, resembles *Hemiaster*;

- OPPENHEIM (229) p. 184, pl. xiv: "n'offre pas les caractères du genre"; LAMBERT in Review. †*B. fraasi*, descr., perh. a local var. of *B. crescenticus*; FOURTAU (119) p. 78, pl. iii. †*B. genei*, descr., perhaps incl. the recent *B. pulvinatus* (p. 199, pl. xxiii), †*B. intermedius*, descr. (p. 198, pl. xxiii); AIRAGHI (1). *B. lyrifera*; KOEHLER (173) p. 99: TODD (302) p. 365: †BRÖGGER (46) p. 520: descr.; †AIRAGHI (1) p. 200: from 7 fms.; CLARK (66) p. 254. †*B. ovata*, v. sub *Hemiasiter. B. pulvinatus*, v. *B. genei*.
- Brissus*:—†*B. carinatus*; BARRON & HUME (13) p. 872. †*B. corsicus*; AIRAGHI (1) p. 197. †*B. cylindricus*; SCALIA (272) pp. 6, 7, 9. *B. unicolor*; CLARK (64) p. 344.
- †*Cardiaster*:—*C. sp.*; ROWE (265) pp. 44, 73. *C. ananchytis*; FORIR (115) p. 16: ROWE (265) pp. 61, 73. *C. cottevanus*; STURM (296) p. 97, pl. xi. *C. fossarius*; JUKES-BROWNE & SCANES (167) p. 118. *C. granulatus*; LORY (193) p. 998. *C. jugatus*, incl. *C. granulatus* Geinitz non Goldf.; STURM (296) p. 97, pl. xi. *C. pillula*, v. *Offaster. C. suborbicularis* (?); JUKES-BROWNE & SCANES (167) p. 118.
- †*Cassidulus*:—*C. lapis-cancris*; LEBEDEV (185) p. 220. *C. cf. romani* Chailaud, "Voy. à Meroë" II, pl. lxxv, ff. 13, 14; FOURTAU (118) p. 166.
- †*Catopygus*:—*C. columbarius*; JUKES-BROWNE & SCANES (167) p. 118. *C. elongatus*; GROSSOUVRE (145) p. 9. *C. fraasi* n. sp., Cenomanian, Lebanon; LORIOU (192) p. 35, pl. ii. *C. obtusus*; GROSSOUVRE (145) p. 6.
- †*Cidaris*:—*C. sp.* nondescr., spines in zone of *Belemnitella mucronata*, Dorset, Wilts, Norfolk; ROWE (265) pp. 62, 73. *C. sp.*, spine; CRAGIN (77) p. 164. *C. sp. 1* (p. 104, pl. i) and *sp. 2* (p. 105, pl. i), Miocene, Burma; NOETLING (225). *C. acicularis*, v. *C. striatogranosa. C. anceps*, v. *C. avenionensis. C. avenionensis*, incl. *C. pustulifera, C. marginata, C. variola, C. spiralis, C. anceps, C. caryophylla*, spines; AIRAGHI (1) p. 166, pl. xix: spines only; VERRI & ANGELIS D'OSSAT (311) p. 15. *C. baculosa* ?; WERTH (319) p. 290. *C. belgica*; VAN ERTBORN (308): spines descr.; AIRAGHI (1) p. 169, pl. xix. *C. blumenbachi*; RASPAIL (253) p. 195. *C. bowerbanki*; STRAHAN (293). *C. caryophylla*, v. *C. avenionensis. C. clavigera*; ROWE (265) pp. 45, 46, 72. *C. clunifera*; PAQUIER (232) p. 998. *C. coronata*; BRUN (47) p. 5: LEBEDEV (185) p. 111. *C. curvatus*; LEBEDEV (185). *C. decorata* [= *dorsata* of 304], spine, descr.; TOMMASI (303) p. 53. *C. desmoulinsii*; BLANCKENHORN (31) p. 379: spines descr. compared with *C. tessurata*; AIRAGHI (1) p. 168, pl. xix. *C. dixiensis* n. sp., "betw. chalk and Ponderosa marl." near Dallas, Texas; CRAGIN (77) p. 146, pl. xlvii. *C. dorsata*; TOMMASI (304). *C. elegans*; MAIRE (199) p. 266. *C. eliasensis* n. sp., Cenomanian?, Lebanon, spines only; LORIOU (192) p. 18, pl. ii. *C. erbaensis*; CACCIAMALI (54) p. 91. *C. aff. flabellatus*; MAIRE (199) p. 267. *C. florescens* n. sp., Helvetian near Turin, allied to *C. tersiger* and *C. verticillum*, based on spines in Rovasenda coll.; AIRAGHI (1) p. 169, pl. xix. *C. florigemma*; RASPAIL (253) pp. 126, 195: ROLLIER (262): WUNSTORF (331) p. 33: spines descr.; SEGUIN (276). *C. fragilis* n. sp., Helvetian near Turin, type in Rovasenda coll.; AIRAGHI (1) p. 165, pl. xix. *C. gastaldii*, v. *C. striatogranosa. C. glandifera*, Nesselldorf, miliary granules; LORIOU (192) p. 6, pl. i. *C. grandaeva*; GRASSMUELLER (137) p. 31. *C. guirandi*, Nesselldorf, spine descr., probably a *Pseudocidaris*; LORIOU (192) p. 8, pl. i. *C. hirta*, v. *C. rosaria. C. hirudo*; GROSSOUVRE (145) p. 8: CAREZ (55) p. 28: ROWE (265) pp. 44, 45, 62, 72. *C. interlineata*; CAREZ (55) p. 12. *C. marginata*, v. *C. avenionensis. C. militensis*, descr.; AIRAGHI (1) p. 165, pl. xix. *C. muensteri*, spine only; VERRI & ANGELIS D'OSSAT (311) p. 15: ditto auctt. plur. discussed; AIRAGHI (1), p. 170. *C. nesselldorfensis* n. sp., Tithonian, Nessel-

- dorf, spines only; LORIOI (192) p. 6, pl. i. *C. nobilis* Sism., v. *rosaria*. *C. oxyrine* (Menegh. as *Rhabdocidaris*) incl. *C. subulius* spines (p. 167, pl. xix). *C. peron*, spines descr. (p. 170, pl. xix). AIRAGHI (1). *C. perornata* (pp. 48, 72), *C. pleracantha* (pp. 62, 72). ROWE (265). *C. pretiosa*?; MAIRE (198). *C. prionopleura*, v. *rosaria*. *C. prionota*; CAREZ (55) p. 12. *C. pustulifera*, v. *C. avenionensis*. *C. pyrenaica*; CAREZ (55) pp. 24, 29. *C. pyrifer*; WUSSAT (331) p. 35. *C. remesi* n. sp., Tithonian, Nesselsdorf; LORIOI (192) p. 4, pl. i. *C. rhotomagensis*; GROSSOUVRE (145). *C. rosaria*, in *C. serraria*, *C. nobilis*, *C. signata*, *C. hirta*, *C. prionopleura*, spines AIRAGHI (1) p. 168, pl. xix. *C. sahelensis*, v. *Cidaris oxyrinus* *scepterifera*; ELBERT (103) p. 99; ROWE (265) pp. 46, 72. *C. schubachii*; MAIRE (199) p. 267. *C. schwabensis*, v. *Dorocidaris papillata*. *C. semiaspera*, v. *C. subularis*. *C. serraria*, v. *C. rosaria*. *C. serrata* with peculiar ornament (pp. 62, 73), *C. serrifera* (pp. 44, 45, 46, 47, 73); ROWE (265). *C. signata*, v. *C. rosaria*. *C. spinosa*; SIMONDES (282) p. 42, pl. ii. *C. spiralis*, v. *C. avenionensis*. *C. sorigueti*; CAREZ (55) p. 24. *C. striato-granosa*; CAREZ (55) p. 12. LEHERET (192) p. 101: incl. *C. gastaldi* and fragments previously referred to AIRAGHI to *C. acicularis*, spines; AIRAGHI (1) p. 164, pl. xix. *C. strata* spines, perhaps is *Pseudocidaris* (p. 9, pl. i), *C. subpunctata*, spines (p. 9): Nesselsdorf; LORIOI (192). *C. subularis*; CAREZ (55) p. 1. OPPENHEIM (229) p. 227: incl. *C. semiaspera*, spines; AIRAGHI (1) p. 164, pl. xix. *C. subvesiculosa*; CAREZ (55) p. 28; ELBERT (103) pp. 99, 103; ROWE (265) pp. 62, 73. *C. tessurata*, v. *C. desmoulinsii*. *C. tithonia* Gemellaro, incl. *C. strambergensis* Cott., Nesselsdorf, spines LORIOI (192) p. 10, pl. i. *Cidaris tribuloides*; CLARK (64) p. 344, & (66) p. 252. +*Cidaris*:—*C. trouillensis*; RASPAIL (253) p. 195. *C. tuberosa* MAIRE (198). *C. variola*, v. *C. avenionensis*; ?; DE STEFANO (3) p. 4. *C. verticillata*; WERTH (319) pp. 290, 300. *C. vesiculosa* GEINITZ (129) p. 277. *C. zeamais*, spines descr. distinct fr. *C. d. moulinsii*; AIRAGHI (1) p. 167, pl. xix. *C. zetes* n. sp. Tithonian, Nesselsdorf, spine fragments only (p. 9, pl. i), *C. zumoffeni* n. sp. Cenomanian, Lebanon, spines only (p. 17, pl. ii); LORIOI (192).
- Clypeaster*: +Egyptian spp. in general; FOURTAU (119) p. 75. +*C. arminatus*; HORUSITSKY (154) p. 216. +*C. aegyptiacus*, Rozière, "Desseins de l'Egypte. Mineralogie," pl. v, f. 10; FOURTAU (118) p. 166: (= *pliocaenicus* Seg.), distribution; BLANKENHORN (31) pp. 358, 361, 364, 365. +*C. altus*; SCHAEFFER (274) pp. 49, 52: descr.; AIRAGHI (1) p. 182, pl. xxi. +*C. ambigenus*, v. *C. laganoides*. +*C. beaumonti* SCHAEFFER (274) pp. 57, 72: descr.; AIRAGHI (1) p. 180, pl. xx. +*C. biarritzensis*, v. *C. pentagonalis*. +*C. crassicostatus*; HORUSITSKY (154) p. 216: descr., two var.; AIRAGHI (1) p. 183, pls. xx & xxii. +*C. depereti* n. sp., Upper Burdigalian, Menchachet el Gialfra, Egypt GAUTHIER in FOURTAU (119) p. 67, pl. vi. +*C. duncansonianus* n. sp. Miocene, near Prome, Burma; NOETLING (225) p. 105, pl. i. +*C. fakhryi* n. sp. Vindobonian, Gebel Geneffie, Egypt; GAUTHIER in FOURTAU (119). +*C. gaymardi*, see *Conoclypeus delanouei*. +*C. gigas*; SCHAEFFER (274) p. 49: probably not same as type understood by Cotteau; LAMBERT in Review: descr.; AIRAGHI (1) p. 184, pl. xx. +*C. humilis*; BARRON & HUME (13) p. 872. +*C. intermedius*; SCHAEFFER (274) p. 51: descr.; FOURTAU (119) p. 74: descr., incl. *C. rosaria* Sismonda, pars, and *C. michelotti* Issel; AIRAGHI (1) p. 183, pl. xxvii. +*C. isseli* n. sp., Tongrian of Sassello, type in Mus. geol. Genov. (p. 181, pl. xx), +*C. laganoides*, descr., incl. *C. ambigenus* Sismonda (p. 181, pl. xx), +*C. latirostris*, descr. (p. 185, pl. xxiv); AIRAGHI (1) p. 183, pl. xxviii. +*C. martinianus*; SCHAEFFER (274) pp. 57, 72. +*C. michelini*, +

- paronai*; +*C. pentagonalis*, descr., incl. *C. biarritzensis* (pl. xx), +*C. placenta*: AIRAGHI (1) p. 179. *C. placunarius*; FOURTAU (117) pp. 537, 540: 1; WERTH (319) pp. 290, 300. +*C. pliogenicus*; FUCHS (123) p. 2. *C. rotundus*, measured; CLARK (63) pp. 332. *C. scutiformis*; FOURTAU (117) p. 540. +*C. subsinuatus* n. sp. Upper Burdigalian, Dar el Beda, Egypt; "Nous ne faisons figurer aucun exemplaire; nous attendrons que nous en rencontrions un plus complet, pour le représenter comme le type de l'espèce"; GAUTHIER in FOURTAU (119) p. 72, [How can a species be founded without a type-specimen?]. +*C. taramealii*; AIRAGHI (1) p. 179. +*C. tauricus*; SCHAEFFER (274) p. 53. +*C. vasseli* n. sp. Vindobonian, Gebel Geneffe, Egypt; GAUTHIER in FOURTAU (119) p. 69, pl. iv & p. 71, pl. v.
- +*Clypeolampas*:—*C. helios*; NOETLING (224) pp. 53, 54. *C. lesteli*; ROUSSEL (263) p. 15. *C. vishnu*; NOETLING (224) pp. 53, 54.
- +*Clypeus hugi*; BUXTORF (53) p. 56.
- +*Codiopsis*:—*C. doma*; GROSSOUVRE (145) p. 4. *C. hoheneggeri* n. sp., Tithonian, Nesselssdorf (p. 13, pl. i), *C. libanicus* n. sp., Cenomanian, Lebanon (p. 27, pl. iii); LORIOLE (192).
- +*Coelopleurus agassizi*; CAREZ (55) p. 12.
- +*Collyrites*:—*C. ardua*; JOLEAUD (164) p. 129. *C. bicordata*; MAIRE (199) p. 266. *C. capistrata*; BRUN (47) p. 5. *C. ovalis*; BUXTORF (53) p. 56.
- Colpotiara*, distinguished fr. *Trochotiara*; LAMBERT in PETITCLERC (240) p. 237.
- +*Conoclypeus*:—*C. anachoreta*; OPPENHEIM (229) p. 148. *C. conoideus*; LEBEDEV (185) p. 100. *C. delanoui*; FOURTAU (119) p. 36: Calliaud "Voy. à Meroë" II, pl. lxx, f. 12, as "*Clypeaster gaymardi*?" ; FOURTAU (118) p. 166. *C. plagiosomus*, see *Echinolampas fraasi*; FOURTAU (118). *C. pyrenaeus*; CAREZ (55) p. 19.
- +*Conulus* Leske ex Klein (incl. *Echinites* Leske, *Galerites* Lam., and *Echinoconus* d'Orb. ex Breyn.):—*C. albogalerus* as *Echinoconus*; ELBERT (103) p. 99: LEBEDEV (185) pp. 219, 221, as *Galerites* [vide etiam *C. conicus*]. *C. castanea*; CAREZ (55) p. 24: JUKES-BROWNE & SCANES (167) p. 119: ROWE (265) pp. 44, 73: STRAHAN (293): all as *Echinoconus*. *C. conicus* [syn. of *C. albogalerus*]; CHEDEVILLE (58) p. 138: ROWE (265) pp. 54, 73: both as *Echinoconus*. *C. gigas*; CAREZ (55) p. 20: FALLOT (106) p. 9: NOETLING (224) p. 56: all as *Echinoconus*. *C. globosus*, measured; WOLLEMAN (329) p. 11, as *Echinoconus*. *C. subrotundus*; ROWE (265) pp. 44, 45, 73, as *Echinoconus*.
- +*Coptosoma*:—*C. aegyptiacum* n. sp., Mid. Eocene, Mokattam, type is young; GAUTHIER in FOURTAU (119) p. 40, pl. ii. *C. alexandrii*; AIRAGHI (1) p. 172: ALESSANDRI (4) p. 285. *C. ? lefeborei* n. sp., Turonian of Abou-Roach, Egypt (p. 29, pl. i), *C. marticense* Lamb. is a *Thylechinus* (p. 46); GAUTHIER in FOURTAU (119).
- +*Coraster beneharnicus*; CAREZ (55) p. 7.
- +*Cottaldia benettiae*; JUKES-BROWNE & SCANES (167) p. 118: CAREZ (55) p. 24.
- +*Craterolampas raulini*, descr.; AIRAGHI (1) p. 192, pl. xxii.
- +*Cyclaster coloniae*; CAREZ (55) p. 20.
- +*Cyphosoma* Ag., vide sub *Phymosoma*.
- Dermatodiadema indicum* Doed. 1900, Nias South Channel, 470 metres (p. 21), *D. molle* n. sp., S. of Maldiva Is., 2919 metres (p. 22); DOEDERLEIN (94).
- Diadema*:—+*D. desori*, incl. *D. sahelensis*, spines descr.; AIRAGHI (1) p. 172. *D. mexicanum*; CLARK (63) p. 331. *D. setosum*; CLARK (64) p. 344: and var. with swollen spines; CLARK (66) p. 253: see II, E, iv; FOURTAU (117) p. 540. +*D. texana*; BOESE (36) p. 11.

- +*Diplopodia*, distinguished fr. *Trochotiar*; LAMBERT in PETITULIER (2) p. 237. *D. hilli*?; CRAGIN (77) p. 147. *D. macilenta*, new to Egypt (p. 5), small specimen descr. (p. 10), *D. marticensis*, not Turanian! Cenomanian, perhaps incl. '*D. variolaris*' Zittel, 1883 (pp. 8, 11) FOURTAU (119). *D. streeruwitzii*, n. sp., Comanche series, Sierra Blanca Texas; CRAGIN (77) p. 147, pls. xxiv, xxv. *D. subangularis*; RASP (253) p. 126. *D. taffi*, n. sp., Fredericksburg beds, near Georgetown Texas (p. 148, pl. xlvi), *D. texana* (p. 149); CRAGIN (77). *D. variola* var. *submunda*; LORIOU (192) p. 25.
- +*Diplotheccanthus concavus*; GREGORY (143) p. 295.
- +*Discoidea* vel *Discoidea*:—*D. arizensis*, *D. conica*; CAREZ (55) p. 24. *cylindrica*; GEINITZ (129) p. 277. *D. decoratus*; PELLAT (23) *D. dixonii*; ROWE (265) pp. 44, 45, 73. *D. inferus*, *D. minimus* GROSSOUVRE (145) p. 7. *D. pulvinata*, descr.; FOURTAU (119) p. 1 pl. i. *D. subucula*; JUKES-BROWNE & SCANES (167) p. 118; CAREZ (55) p. 24, 29.
- +*Ditremaster nux*; DOUVILLÉ (96) p. 445.
- Dorocidaris alcocki*, see *Stereocidaris indica*. *D. papillata*; CLARK (4) p. 252; KOEHLER (173) p. 99; *Pluteus*; MORTENSEN (214) p. 23 & fig. incl. *C. schwabenau*, spines descr.; AIRAGHI (1) p. 171, pl. xix.
- tiara*, see *Stereocidaris indica*.
- +*Dumlea* n. g., of *Echinidae*, with genotype *D. symmetrica* n. sp. Comanche series, Sierra Blanca, Texas; CRAGIN (77) p. 150, pls. xx, xxvii, xxiv.
- +*Dysaster granulosus*; MAIRE (199) p. 266.
- +*Echinanthus*:—*E. antillarum*; GREGORY (143) p. 295. *E. arizensis* (p. 4) *E. atacensis* (p. 19), *E. biarrizensis* (p. 12); CAREZ (55). *E. bay* descr.; AIRAGHI (1) p. 190, pl. xxiii. *E. carinatus*; CAREZ (55) p. 1. *E. desmoulini*, descr.; AIRAGHI (1) p. 190, pl. xxi. *E. gracilis* CAREZ (55) p. 19. *E. griesbachii*; NOETLING (224) pp. 54, 55. *E. latus*; CAREZ (55) p. 19. *E. oosteri*; AIRAGHI (1) p. 191. *E. pellat* CAREZ (55) p. 12. *E. placenta*, descr.; AIRAGHI (1) p. 191, pl. x. *E. pouechii*, *E. raysacensis*; CAREZ (55) p. 19.
- Echinanthus rosaceus*; CLARK (66) p. 254.
- +*Echinanthus*:—*E. rousseli* and *E. scutella* (p. 19), *E. xopitanius* (p. 12) CAREZ (55). *E. subrotundus*; CAREZ (55) p. 19: descr.; AIRAGHI (1) p. 189, pl. xxi.
- Echinarachnius eccentricus*; CLARK (63) p. 332. *E. parma*; WHITEHEAD (320) p. 63; abnormal; TOWER (307).
- Echinobrissus*, vide *Nucleolites*.
- Echinocardium cordatum*; TODD (302) p. 365; LORIOU (191) p. 2. +SMITH et al. (287) p. 533; *Pluteus*; MORTENSEN (214) p. 29 & fig. popular account; NEWBIGIN (221) p. 139. *E. flavescens*; KOEHLER (173) p. 99; TODD (302) p. 365. +*E. geneffense* n. sp., Upper Bard gallan, Geneffe, Egypt; GAUTHIER in FOURTAU (119) p. 81, pl. ii.
- +*E. saccoi*; BLANCKENHORN (31) pp. 358, 360, 364.
- +*Echinoconus*:—*E. albogalerus*, *E. castanea*, *E. conicus*, *E. gigas*, *E. gibbosus*, *E. subrotundus*: vide sub *Conulus*.
- +*Echinocorys* Leske (incl. *Ananchytes* Lam.):—*A. arctatus*, nom. nud. (p. 263), *A. conoideus* (p. 276); LEBEDEV (185). *A. corculum* op. cit. p. 206; WOLLEMAN (329) p. 11. *E. douvillei*; CAREZ (55) p. 7. *A. gibba* and *E. ovatus*; CHÉDEVILLE (58) p. 138. *A. ovata* WOLLEMAN (329) p. 11; HINTERLECHNER (153) p. 471; LEBEDEV (185) pp. 121, 204, 206, 212, 214, 219, 220, 221, 263, 276: tubercle and apical system (p. 134 & fig.): localities (pp. 98, 99, 101, 103, 104, 105, 146): var. *conica* (p. 105), var. *gibba* (pp. 99, 133), var. *striata*, fort. (p. 133 & fig.), apical system (p. 135 & fig.), localities (pp. 98, 99, 101, 103, 104, 105, 147); ELBERT (103). *E. pyrenaicus* (p. 7), *E. et A. semi*

- globus* (pp. 7, 20); CAREZ (55) p. 20. *A. texana* n. sp., Cretaceous, Medina co., Texas, also fragments, ? this sp., *Ponderosa* marl, New Sweden, Travis co.; CRAGIN (77) p. 145, pls. xxv, xxvi. *E.* et *A. vulgaris*; CAREZ (55) pp. 7 & 20: CHEDEVILLE (58) p. 138: IMKELLER (161) p. 28: varr. *conoidea*, *ovata*, *sulcata*; FORIR (115) p. 16: *E. vulgaris* (pp. 48, 52, 73) and var. *pyramidalis* (pp. 48, 54) and var. *gibbus* (pp. 48, 57): a small pointed var. and a dwarfed sub-pyramidal var. (p. 61); ROWE (265): var. *gibbus*; ROWE (266) p. 190.
- Echinocyamus*:—†*E.* sp.; VAUGHAN (309). †*E. affinis*, compared with *E. subcaudatus*; OPPENHEIM (229) p. 228. †*E. angulosus*; BRØGGER (46) pp. 437, 520. †*E. biarritzensis*; CAREZ (55) p. 12. †*E. piriformis*; FALLOT (106) p. 4, & (107) p. 970: AIRAGHI (1) p. 177. *Echinocyamus pusillus*; KOEHLER (173) p. 100: TODD (302) p. 365: †BLANCKENHORN (31) p. 379: †BRØGGER (46) p. 14: †DE STEFANO (85) p. 10: †LORIE (191) p. 22: †SCALIA (272) p. 9, & (273) p. 2: †SMITH et al. (287) p. 533: descr.; †AIRAGHI (1) p. 178, pl. xxii: *Pluteus*; MORTENSEN (214) pp. 21, 25, & fig. †*E. siculus*; SCALIA (272) p. 9, & (273) p. 2. †*E. studeri*, descr.; AIRAGHI (1) p. 177, pl. xxii.
- †*Echinocyphus difficilis*; JUKES-BROWNE & SCANES (167) p. 119.
- Echinodiscus auritus*, *E. biforis*; FOURTAU (117) p. 540. †*E. formosus* n. sp., Miocene, N. Formosa and Loochoo Is., incl. "*Echinodiscus bioculatus* Ag." of Lebour 1885, compared with *E. placenta*; YOSHIWARA (332) pp. 51, 62.
- †*Echinolampas*:—*E.* sp. incl. "*Ottiliaster pusillus*" Penecke 1884; OPPENHEIM (229) p. 148. *E. affinis*; AIRAGHI (1) p. 195, vide etiam *E. hemisphaericus*. *E. africanus*; FOURTAU (117) p. 550. *E. amplus*; BLANCKENHORN (30) p. 82. *E. angulatus*, descr.; AIRAGHI (1) p. 195, pl. xxiii, vide etiam *E. hemisphaericus*. *E. beaumonti*, descr.; AIRAGHI (1) p. 191, pl. xxiii. *E. biarritzensis*; CAREZ (55) p. 12. *E. blainvillei*; FALLOT (106) p. 4, & (107) p. 972. *E. blaviensis*, descr. (p. 192, pl. xxv), *E. cassinellensis*, descr., distinguished fr. *E. laurillardii* and *E. pulitus* (p. 193, pl. xxi); AIRAGHI (1). *E. delbosi*, *E. ellipsoidalis*; CAREZ (55) p. 12. *E. escheri*, *E. eurysonus*; AIRAGHI (1) p. 194. *E. falloti*; FALLOT (106) p. 7. *E. fraasi*, Rozière "Descr. de l'Egypte. Mineralogie" pl. xi, ff. 3, 5, not *Conoclypeus plagiosomus* as supposed by Michelin; FOURTAU (118) p. 167. *E. globulus*; AIRAGHI (1) p. 195. *E. hemisphaericus*; FALLOT (106) p. 20: PAVLOVIC (234): SCHAFFER (274) p. 53: descr., incl. *E. angulatus*, *E. affinis*, and *E. pilus* of Alessandri; AIRAGHI (1) p. 196. *E. laurillardii*; FALLOT (106) p. 20. *E. meslei* n. sp., Plaisancian, near Ghizeh; FOURTAU (119) p. 86, pl. v. *E. aff. monterialensis*; OPPENHEIM (229) p. 229. *E. orlebari* n. sp., Upper Burdigalian, Dar el Beda, Egypt; GAUTHIER in FOURTAU (119) p. 76, pl. iv. *E. ovalis*; FALLOT (106) p. 6.
- Echinolampas oviformis*; FOURTAU (117) p. 540.
- †*Echinolampas*:—*E. pilus*, v. *E. hemisphaericus*. *E. plagiosomus*; AIRAGHI (1) p. 195: ALESSANDRI (4) p. 284. *E.* cf. *pyramidalis*; BLANCKENHORN (30) pp. 104, 105. *E. scutiformis*; DAINELLI (79) p. 653. *E. similis*; AIRAGHI (1) p. 195: FALLOT (106) p. 7. *E. stelliferus*; loc. cit. *E. studeri*; AIRAGHI (1) p. 194. "*E. studeri* Ag." of Meneghini in Lamarmora is not *E. studeri* and probably not from Sardinia at all; LOVISATO (194A) p. 14. *E. subsimilis*; CAREZ (55) p. 12. *E. suessi*; OPPENHEIM (229) p. 148.
- Echinometra lucunter*; FOURTAU (117) p. 540: †BARRON & HUME (13) p. 871: †HUME (157) p. 34, & (158) p. 922. *E. oblonga*; CLARK (63) p. 331. *E. subangularis*; CLARK (64) p. 344: variation in shape and colour; CLARK (66) p. 253: fishery of (see II, E, ii); DUERDEN (99). *E. viridis*; CLARK (66) p. 253.
- Echinoneus semilunaris*; CLARK (64) p. 344.

- Echinopluteus* in general, list of spp. (p. 21), *E. coronatus* (p. 28 & fig. *Dorocidaris papillatae* (p. 23 & fig.), *E. Echini esculenti*, incl. *E. Mrtsn.* (p. 28 & fig.), *E. Echinocardii cordati* (p. 29 & fig.), *E. E. cyami pusilli* (pp. 21, 25 & fig.), *E. fusus* (p. 21 & fig.), *E. Psammis miliaris*, incl. stage formerly referred to *Echinus esculentus* (p. 1 fig.), *E. Spatangii purpurei* (p. 29 & fig.), *E. Sphaerechini grana* (p. 24 & fig.), *E. Sphaerechini rosei* (p. 25 & fig.), *E. Strongylocentrotus drobachiensis* (p. 26 & fig.), *E. Strongylocentrotus lividi* (p. 27 & fig. *theeli* referred to *Echinus esculentus* (p. 28); MORTENSEN (214).
- +*Echinopsis*:—*E. arenata*; CAREZ (55) p. 12. *E. elegans*; FALLOT (p. 6).
- +*Echinospatangus* vel *Echinospatagus*:—*E. sp.*; SIMIONESCU (281) p. *E. collegrnoi*; CAREZ (55) p. 28. *E. cordiformis*, *E. intermedius* MAIRE (198). *E. murchisoni*; JUKES-BROWNE & SCANES (167) p. *Echinostrephus molare*, see II, d, iv.
- Echinus*:—+*E. astensis*, v. *Psammochinus*. +*E. drobachiensis* vide *Strongylocentrotus*. +*E. dux*, v. *Anapesus hungaricus*, *E. esculenti* GIARD (130); TODD (302) p. 365: +BRÜGGER (46) pp. 437, 520, +SMITH et al. (287) p. 533: see II, d, viii; SHIPLEY (278): pop account and fig.; NEWBIGIN (221) p. 135: excretory cells; CUI (78) pp. 250, 252: *Pluteus*; MORTENSEN (214) p. 28 & fig.: development of jaws; MACBRIDE (196): test and jaw apparatus; SHIPLEY MACBRIDE (280) pp. 255 & 257, text-figg.: descr. fr. *Astias Astigiano*; +AIRAGHI (1) p. 173, pl. xix: but differs from the living sp. in tuberculation; LAMBERT in Review. +*E. hungaricus*, v. *Anapesus*. +*E. melo*, descr. fr. *Astias* of Mte Castello; AIRAGHI (1) p. pl. xix: but differs from the living sp. in tuberculation; LAMBERT in Review. *E. miliaris*; FAUVEL (109): TODD (302) p. 365: the body; DEKHUYZEN (86) p. 539: popular account; NEWBIGIN (221) p. 135. *E. microtuberculatus*, fertilisation (q.v.); BULLER (189) p. 135: centrosomes; BOVERI (40) pp. 29-62: reaction to fresh water; RIGGENBACH (261): see II, f, viii; HERBST (147) & WINKLER (3) *E. sphaera* [sic]; KOEHLER (173) p. 99. +*Echinus verrucosus* HUME (156) p. 203, (157) p. 33, & (158) p. 922.
- +*Enallaster*:—*E. inflatus* n. sp., *Arietina* marl, Denton Creek, Texas; CRAGIN (77) p. 151, pl. xxiv. *E. texanus*; HILL & VAUGHAN (151) p. 235: variation in pore-pairs; CRAGIN (77) p. 151.
- +*Eotiaris*, not to be distinguished from *Cidaris*; TORNQUEST (305).
- +*Epiaster*:—*E. distinctus*; CAREZ (55) p. 24. *E. electus* n. sp., Upper Cretaceous, Sandy Creek, Travis co., Texas; CRAGIN (77) p. 152, fig. *E. elegans*; HILL & VAUGHAN (151) p. 235: (p. 152) also n. sp. *praenuntius*, Comanche Peak and Fort Worth Limestones of Texas (p. 152), *E. hemiasterinus* n. sp., *Arietina* clay near Roanoke, Texas (p. 153, no fig.); CRAGIN (77). *E. lorioli*; JUKES-BROWNE & SCANES (167) p. 119. *E. whitei*, descr., distrib., variations; CRAGIN (77) p. 154.
- Eupatagus*, vide *Euspatagus*.
- +*Euporophyma*, nom. nov. suggested for Cretaceous spp. allied to *Coscinura*, but too imperfectly preserved to be identified therewith; its adoption is postponed for the present; the type would have been *C. lefebvieri* (q.v.); GAUTHIER in FOURTAU (119) p. 31.
- +*Euspatagus* (vel *Euspatagus* vel *Eupatagus*):—*E. sp.* indet., Miocene, Gebel Geneffé, measured; BLANCKENHORN (30) p. 83. *E. croizeti* FALLOT (106) p. 7. *E. dalmatinus*, probably *Macropneustes*; OREHEIM (229). *E. desmoulini*; CAREZ (55) p. 12. *E. melis* n. sp., Helvetian, Collina di Torino, Type in Mus. geol. Turin (p. 214, pl. xxvii), *E. minutus*, descr. (p. 214, pl. xxvii) AIRAGHI (1). *E. ornatus*; AIRAGHI (1) p. 214; CAREZ (55) p. 12; LEBEDEV (185) p. 1.

- †*Gagaria*, syn. of *Orthechinus*; GAUTHIER in FOURTAU (119) p. 42, see also *Micropsidia*.
- †*Galeaster bertrandi*; CAREZ (55) p. 7.
- †*Galerites albogalerus*, vide sub *Conulus*.
- †*Galeropygus marcovi*; PETITCLERC (239).
- †*Glyphocyphus radiatus*; JUKES-BROWNE & SCANES (167) p. 119: ROWE (265) p. 44.
- †*Glypticus hemisphericus*; RASPAIL (253) p. 195.
- Goniocidaris mortenseni* Koehl. 1900, Antarctic, descr.; KOEHLER (172) p. 5, pls. i-v.
- †*Goniophorus lunulatus*; JUKES-BROWNE & SCANES (167) p. 119.
- †*Goniopygus*:—*G. coquandi*; FOURTAU (119) pp. 7, 15. *G. delphinensis*; PAQUIER (232) p. 998. *G. innesi* n. sp., Santonian, Berak el Gazal, Egypt; GAUTHIER in FOURTAU (119) p. 32, pl. i. *G. syriacus* n. sp., Cenomanian, Lebanon; LORIOU (192) p. 28, pl. iii. *G. zitteli*; CRAGIN (77) p. 155.
- †*Gymnopatagus*, n. g. with genotype *Gymnopatagus valdiviae* n. sp., near E. Africa, 741-1362 metres; DOEDERLEIN (94) p. 22.
- Hemiaster* sp. indet., fragment of dorsal surface resembling *H. australis*; KOEHLER (172) p. 13.
- †*Hemiaster*:—*H. artini* n. sp., Middle Cenomanian, near Galala el Baharieh, Egypt; GAUTHIER in FOURTAU (119) p. 23, pl. ii. *H. basidecorus* n. sp., Eocene of Ajka, Bakony, resembles *Linthia*; OPPENHEIM (229) p. 166, pl. xiv. *H. blanfordi*; NOETLING (224) pp. 54, 56. *H. bufo*; CAREZ (55) p. 24: GROSSOUVRE (145) p. 6. *H. cenomanensis*; GROSSOUVRE (145) p. 5. *H. aff. cristatus*; BURCKHARDT (50) p. 209, pl. i. *H. cubicus*; FOURTAU (119) pp. 8, 22: HUME (156) p. 203, (157) p. 40, & (158) pp. 927, 928. *H. figarii* n. sp., Middle Cenomanian, Wady Askhar el Baharieh; GAUTHIER in FOURTAU (119) pp. 7, 25, pl. ii. *H. aff. fourneti*; GEINITZ (129) p. 277. *H. gauthieri*; ROUSSEL (263) p. 15. *H. cf. lacunosus*; STURM (296) p. 98, pl. xi. *H. lusitanicus* (= *rochensis* ?); BEADNELL (20) p. 852. *H. minimus*; CAREZ (55) p. 24: ROWE (265) pp. 44, 45, 73. *H. morrisi*; JUKES-BROWNE & SCANES (167) p. 119. *H. nanutulius*; CAREZ (55) p. 20. *H. nucleus*; GROSSOUVRE (145) p. 9. *H. obesus*; LEBEDEV (185) p. 61. *H. oldhami*; NOETLING (224) pp. 53, 54. *H. orbignyianus*; FOURNIER (116) p. 23. *H. ovatus* (Sisinonda as *Schizaster*) descr.; AIRAGHI (1) p. 197, pl. xxiii. *H. pellati*; CAREZ (55) p. 12. *H. pseudofourneti*; FOURTAU (117) p. 545: descr., probably incl. '*H. proclivis*' Zittel, 1883; FOURTAU (119) pp. 5, 6, 21. *H. pullus*; BURCKHARDT (50) p. 209, pl. i. *H. texanus*; CRAGIN (77) p. 155: HILL & VAUGHAN (151) pl. lxi: ?; BOESE (36) p. 11. *H. toucasanus*; ELBERT (103) p. 100.
- †*Hemicidaris*:—*H. clunifera*; PAQUIER & ZLATARSKY (233). *H. crenularis*; MAIRE (199) p. 265: RASPAIL (253) p. 126: ROLLIER (262). *H. hoffmanni*; WUNSTORF (331) p. 36. *H. intermedia*; RASPAIL (253) p. 195. *H. undulata*; MAIRE (199) p. 266.
- †*Hemidiadema rugosum*; PELLAT (237).
- †*Hemipatagus*:—*H. fuchsi*; BLANCKENHORN (30) p. 104: = *Maretia fuchsi* q.v. *H. pellati*; CAREZ (55) p. 12.
- †*Hemipneustes*:—*H. compressus* (pp. 54, 55, 56), *H. leymyeri* (p. 54); NOETLING (224). *H. pyrenaicus*; CAREZ (55) p. 20: FALLOT (106) p. 9: NOETLING (224) pp. 53, 54.
- †*Heteraster oblongus*; LEBEDEV (185) p. 187: PAQUIER & ZLATARSKY (233)
- †*Heterobrissus formai* n. sp., Helvetian of Pino Torinese, coll. Forma; AIRAGHI (1) p. 210, pl. xxvi.
- †*Heterocentrotus mamillatus*; BARRON & HUME (13) p. 872: HUME (157) pp. 22, 31, 33, & (158) pp. 914, 920, 922.

- †*Heterodiadema*, distinguished fr. *Trochotiara*; LAMBERT in PETIT (240) p. 237. *H. libycum*; BEADNELL (20) p. 852; FOURTAU (pp. 6, 9; HUME (156) p. 203, (157) p. 40, (etiam errore *Heterod* (158) pp. 927, 928).
- Heteropedina*, distinguished fr. *Trochotiara*; LAMBERT in PETIT (240) p. 236.
- Hyponoë esculenta*; CLARK (64) p. 344, & (66) p. 254: fishery of (see E, ii); DUERDEN (99). †*H. parkinsoni*, descr.: AIRAGHI (1) p. pl. xix: perh. = "la grande espèce italienne" figd. by Cerutus begin of XVII Cent.; LAMBERT in Review.
- †*Holaster*:—*H. sp.* nondescr.; ELBERT (102) see also *Holasteropsis ananchytoides* n. sp. Turonian of Kleine Berg near Rothenfelde i coll. Kanzler in Rothenfelde, described (p. 118, pl. 3), apical sys (p. 135, & fig.), localities (pp. 103, 104), form (p. 132 & fig.); ELB (103). *H. completus* n. sp., Denison beds & Arietina Limest., Grayson co., Texas; CRAGIN (77) p. 155, pls. xxiv, xxv, xxvii. *H. integer*; CL (55) pp. 22, 31. *H. laevis*; JUKES-BROWNE & SCANES (167) p. 119. GEINITZ (129) p. 277. *H. latissimus*; PELLAT (237). *H. sp.* (Thomas & Gauth. as *Pseudholaster*), descr.; GAUTHIER in FOUR (119) p. 34, pl. i. *H. nanus* n. sp., Vola bed, Grayson co., Texas; CRAGIN (77) p. 156, pls. xxiv, xxv. *H. nodulosus*; CAREZ (55) p. Fournier (116) p. 23. *H. obliquus* (?); JUKES-BROWNE & SCANES (167) p. 119. *H. placenta*; HINTERLECHNER (153) p. 473; ROWE (p. 73, & (266) p. 190. *H. planus*; LEBEDEV (185) p. 206; ROWE (pp. 45, 73, & (266) p. 190: alleged typical form redescribed (p. 1) tubercles, apical system discussed and figd. (p. 134), localities (pp. 99, 101, 103, 104, 106, 147), general form (p. 130 & fig.), var. *carinus* form (p. 130 & fig.), tubercles and apical system (p. 134 & fig.), localities (pp. 98, 101, 113), n. var. *inferior*, not defined but apical sys figd. (p. 136), var. *laevis*, form (p. 131 & fig.), tubercles and apical sys (p. 134 & fig.), localities (pp. 103, 113), n. var. *quadrangulus*, fig (p. 131 & fig.), locality (p. 104), apical system (p. 135 & fig.), n. var. *superior*, not defined but apical system figd. (f. 13), var. *trecensis*, fig (p. 131 & fig.), localities (pp. 103, 104, 106, 113); ELBERT (1) *H. senonensis*; LEBEDEV (185) p. 206. *H. simplex*; CRAGIN (p. 157, pl. xxv. *H. subglobosus*, with var. *altus*; STRAHAN (293) JUKES-BROWNE & SCANES (167) p. 119. *H. suborbicularis*, locc. cit. GEINITZ (129) p. 277. *H. supernus* n. sp., Cretaceous, Denton, Texas; CRAGIN (77) p. 157, no fig. *H. trecensis*; JUKES-BROWNE & SCANES (167) p. 119.
- †*Holasteropsis* n. g., with genotype *Holaster credneriana* Elbert, Turonian of Kleine Berg near Rothenfelde i. H., descr. (p. 115, pl. iv), fig (p. 132 & fig.), apical system (p. 135 & fig.), locc. (pp. 98, 101, 106) n. var. *subconica* (p. 132 & fig.); ELBERT (103).
- †*Holactypus*:—*H. baluchistanensis*; NOETLING (224) pp. 53, 54. *H. chertoni* n. sp., Arietina marl & limestone, Denton & Grayson cos., Texas; CRAGIN (77) p. 158, pl. xxiv. *H. corallinus*; RASPAIL (253) p. 1. *H. depressus*; loc. cit.: BRUN (47) p. 5; BUXTORF (53) p. 56; COG (71). *H. exilis*; FOURTAU (119) p. 8. *H. granosus*; MAIRE (18) *H. macropygus*; LEBEDEV (185) pp. 207, 212. *H. planatus*, distributed; CRAGIN (77) p. 159. *H. planus*; RASPAIL (253) p. 195. *H. truncatocensensis* n. sp., Comanche series, Sierra Blanca, Texas; CRAGIN (p. 160, pl. xxvii).
- †*Horiopleura lamberti*; CAREZ (55) p. 24.
- †*Hyboclypeus*:—*H. gibberulus*; BUXTORF (53) p. 56. *H. subcircularis* PETITCLERC (240) p. 214, pl. vi.
- Iheringiana*, synonymy discussed by C. BERG, this name preferred, vi Zool. Rec. 1899 sub vocem; COSSMANN (75).

- †*Ilarionia* sp.; OPPENHEIM (229) p. 148.
- †*Infulaster*:—*I. excentricus* (pp. 98, 99, 103, 106), *I. major* (p. 99); ELBERT (103).
- †*Isaster amygdala*; LEBEDEV (185) p. 206.
- †*Jeronia pyrenaica*; CAREZ (55) p. 7.
- †*Laganum*:—*L. depressum*; BARRON & HUME (13) p. 872: HUME (157 pp. 22, 31, 33, & (158) pp. 914, 920, 922. *L. multiforme*; MARTIN (201) pp. 141, 193.
- Lefortia* **nom. nov.**, pro *Pomelia* Lorient non Zittel; COSSMANN (74).
- †*Leiocidaris*:—*L.* sp.; DE STEFANO (85) p. 4. *L. hemigranosa*, spines descr.; CRAGIN (77) p. 160, pl. xlv. *L. hystrix* [sic], *L. margheritifera* [sic]; DE STEFANO (85) p. 7.
- †*Linthia*:—*L.* sp. = "*L. heberti* Cott." of Penecke 1884; OPPENHEIM (229) p. 149. *L. capellinii* (p. 200), *L. cevense*, descr. (p. 201, pl. xxiv), *L. lorienti* (p. 200); AIRAGHI (1). *L. oblonga*; FOURNIER (116) p. 23. *L. pomeli*; FALLOT (106) p. 7. *L. pulcinella* Oppenh., perhaps a *Hemius*; OPPENHEIM (229) p. 167.
- Lorientia*, distinguished fr. *Trochotiar*; LAMBERT in PETITCLERC (240) p. 237.
- Lovenia elongata*; FOURTAU (117) p. 540.
- †*Macropneustes*:—*M.*? sp., fragment descr.; FOURTAU (119) p. 56. *M.* sp., perhaps = *Euspatangus dalmatinus* Bittn.; OPPENHEIM (229) p. 229. *M. desori*, descr.; AIRAGHI (1) p. 210, pl. xxvii. *M. pellati*, *M. pulvinatus*; CAREZ (55) p. 12.
- †*Magnolia*:—*M. pauperata* n. sp. (p. 16, pl. i), *M. suessi* n. sp. (p. 15, pl. i): Lithonian, Nesselssdorf; LORIENT (192): enlarged figg. of ambulacra do not agree with description, esp. in omission of doubling of pores towards peristome; LAMBERT in Review.
- †*Mareta fuchsii* n. sp., Miocene, type in Schweinfurth Coll., Berlin Mus., from Mirsa Badia in Cyrenaika, incl. "*Hemipatagus* sp." Fuchs 1883, "*Spatangus ocellatus* Deffr." Rothpletz 1893, & "*Lovenia* sp." Gauthier in Fourtau 1899; OPPENHEIM in BLANCKENHORN (30) p. 114 & text-fig.: other locc.; BLANCKENHORN (30) pp. 76, 83, 104, 107.
- †*Mariania* n. g. of *Spatangidae* with genotype *M. marmoras*; AIRAGHI (1) p. 211: "bien difficile à distinguer de *Hypsospatagus*"; LAMBERT in Review: name "grammaticalement synonyme" with *Mariana* Quoy et Gaimard 1824; COSSMANN in note to LAMBERT's Review. *M. chitonosa* (Sism. as *Spatangus*), descr.; AIRAGHI (1) p. 212, pl. xxvii: probably a *Macropneustes*; LAMBERT in Review. *M. marmoras* (Agass. & Desor as *Macropneustes*), descr.; AIRAGHI (1) p. 212, pl. xxvii.
- Mellita sexforis*; CLARK (64) p. 344, & (66) p. 254. *M. testudinata*; loc. cit.
- †*Melonechinus youngi*; SMITH (285).
- Metalia sternalis*; FOURTAU (117) p. 540.
- †*Micraster*, see II, E, i, c; GEIKIE (128). *M. acutus* from greensand of Timmerge, descr. (pp. 100, 120), *M. breviporus*, discussed and divided into 3 n. varr. *longus*, *brevis*, & *oblongus* (pp. 119, 136), apical system (p. 136 & fig.), localities (pp. 98, 99, 101, 103, 105, 106, 146); ELBERT (103). *M. brevis*; CAREZ (55) pp. 25, 31: ROUSSEL (263). *M. carentonensis*; GROSSOUVRE (145) p. 9. *M. cor-anguinum* (p. 105), apical system (p. 137 & fig.); ELBERT (103): ROWE (265) pp. 48, 52, 57, 62, 73: (?) CHEDEVILLE (58) p. 138: (?) LEBEDEV (185) pp. 214, 220, 243, 263, 264, 276: var. *latior* ROWE (265) pp. 20, 54, 73. *M. cor-bovis*; ROWE (266) p. 190, & (265) pp. 44, 73. *M. cor-testudinarium*; ROWE (266) p. 190, & (265) pp. 48, 52, 73: apical system (p. 137 & fig.), localities (pp. 99, 101, 103, 105, 106, 146), **nn. varr.** *inferior*, & *superior*, apical system (p. 137 & fig.); ELBERT (103). *M. delorienti*; HINTERLECHNER (153) p. 473. *M. glyphus*; FORBES (115) p. 16: WOLLEMAN

- (329) p. 11. *M. heberti*; CAREZ (55) p. 22: ROUSSEL (263). *M. leskei*; ROWE (266) p. 190, & (265) p. 73. *M. cf. michelini*; ELBERT (103) p. 100. *M. praeursor*; ROWE (266) p. 190, & (265) pp. 48, 73: considered unnecessary; ELBERT (103) p. 140. *M. regularis*; GROSSOUVRE (145) p. 9. *M. tercensis*; CAREZ (55) p. 20. *M. turonensis*; GROSSOUVRE (145) p. 9.
- +*Micropeltis isseli* n. sp. Tortonian of Stazzano, allied to *M. vidali*, type in Mus. geol. Genova; AIRAGHI (1) p. 172, pl. xix.
- +*Micropsidia* discussed and rejected; GAUTHIER in FOURTAU (119) p. 44: but maintained, and incl. *Thylechinus*, *Psilosoma*, *Orthechinus*, *Gagara*, & probably *Orthocyphus* & *Mistechinus*; LAMBERT in Review.
- +*Micropsis* discussed & restricted; GAUTHIER in FOURTAU (119) p. 41. *M. biarritzensis* (p. 12), *M. desori* (p. 20); CAREZ (55). *M. fraasi* Loriol, is an *Orthechinus*; GAUTHIER in FOURTAU (119) p. 48. *M. leymeriei*; CAREZ (55) p. 20. *M. aff. veronensis*; OPPENHEIM (229) p. 227.
- +*Mistechinus*, see *Micropsidia*.
Moiria stygia; FOURTAU (117) p. 540.
- +*Monophora darwini*, incl. *Scutella geometrica* Phil.; BOBCHERT (37) p. 229, pl. x.
- +*Neoclypeus* n. g. allied to *Clypeus*, *Pygurus*, & *Pseudodesorella*, with genotype *N. syriacus* n. sp., Cenomanian, Lebanon; LORIOL (192) p. 34, pl. ii: probably *Pseudodesorella*; LAMBERT in Review.
- +*Noelilingia*, rediagnosed and compared with *Echinus*; GAUTHIER (127) p. 189. *N. montelli* n. sp., Maestrichtian, Zau Saghair, near Bilma in the Sahara, allied to the Indian *N. paucituberculatus*; GAUTHIER in LAPPARENT (180) p. 392: fully described; GAUTHIER (127) p. 191, pl. iii: abstract; LAPPARENT (181 & 182).
- +*Nucleolites* (incl. *Echinobrissus*):—*E. clunicularis*; BUXTON (53) p. 56. *E. ghazirensis*, details added to original description; LORIOL (192) p. 31, pl. ii: referable to *Clitopygus* Pomel; LAMBERT in Review. *E. goybeti*, large specimen; LORIOL (192) p. 31. *E. lacunosus*; JUKES-BROWNE & SCANES (167) p. 119. *N. minimus*; GROSSOUVRE (145) p. 9. *E. cf. minimus*; FOURNIER (116) p. 23. *E. orbicularis*; COOKE (71). *N. parallelus*; GROSSOUVRE (145) p. 6. *N. scutatus*; RASPAIL (253) pp. 126, 149, 195. *E. aff. scutatus*; MAIRE (199) p. 268. *E. texanus*; CRAGIN (77) p. 150. *E. waltheri*; FOURTAU (119) p. 26.
- +*Nucleopygus roberti*; PAQUIER (232) p. 998.
- +*Offaster*:—*O. leymeriei*; CAREZ (55) p. 20. *O. pilula*; loc. cit.: ROWE (265) pp. 27, 55, 56, 73: LEBEDEV (185) p. 206. *O. rostratus*, and *O. aff. triangularis*; loc. cit.
- +*Oriolampas michelini*; CAREZ (55) p. 19.
- +*Orthechinus* discussed and maintained; GAUTHIER in FOURTAU (119) p. 42: a syn. of *Micropsidia*; LAMBERT in Review. *O. mokattamensis*, only 3 pairs of pores, not 4, as figd. by de Loriol; GAUTHIER in FOURTAU (119) p. 48. *O. schweinfurthi* n. sp., Lower Eocene, Wady Ashkar el Baharieh; op. cit. pp. 36, 49, pl. ii: "a tous les caractères de *Micropsidia*"; LAMBERT in Review.
- +*Orthocyphus*, see *Micropsidia*.
- +*Orthopsis*:—*O. granularis*; CAREZ (55) p. 24. *O. miliaris*; ROUSSEL (263) p. 15. *O. occidentalis* n. sp., Comanche series, Sierra Blanca, Texas; CRAGIN (77) p. 160, pls. xxv, xxvii. *O. zumoffeni*, descr., loc. as given in "Notes &c. vi" corrected to "*Ghazir au-dessus du village*"; LORIOL (192) p. 26.
- +*Palaechinus sphericus*; HIND & HOWE (152) pp. 352, 355: SMITH (285).
- Palaeopneustes hystrix*; CLARK (66) p. 255. *P. niasica* n. sp., Nias South Channel, 470 metres; DOEDERLEIN (94) p. 22.

- †*Pedinopsis desori*, large; FOURTAU (117) p. 545: descr., esp. apical system; FOURTAU (119) pp. 6, 12.
- †*Peltastes*:—*P. acanthoides*; GROSSOUVRE (145) p. 5. *P. clathratus*; JOHNSON (163): JUKES-BROWNE & SCANES (167) p. 119. *P. remesi* n. sp., Tithonian, Nesseltsdorf; LORIOL (192) p. 12, pl. i. *P. stellatus*; MAIRE (198). *P. studeri*; CAREZ (55) p. 24. *P. umbrella* and *P. wiltshirei*; JUKES-BROWNE & SCANES (167) p. 119.
- †*Periaster*:—*P. biarizensis* [sic]; LEBEDEV (185) p. 100. *P. biarritzensis* and *P. heberti*; CAREZ (55) p. 12. *P. roachensis*, no subanal fasciole, probably *Hemiaster*, identical with a Cenomanian form; BLANCKENHORN (32) p. 149. *P. verticalis*; CAREZ (55) p. 12.
- †*Pericosmus*:—*P. aequalis* (p. 206), *P. edwardsii*, descr. (p. 207, pl. xxvi), *P. latus*, descr. (p. 206, pl. xxv); AIRAGHI (1). *P. latus*, incl. *P. lyonsi*; FOURTAU (119) p. 80: Rozière "Descr. de l'Égypte. Minéralogie," pl. xi, f. 4; FOURTAU (118) p. 167. *P. lyonsi*; BLANCKENHORN (30) p. 83: only an aberrant *P. latus*; FOURTAU (119) p. 80. *P. marianii*; AIRAGHI (1) p. 206. ALESSANDRI (4) p. 284. *P. nicaisi*; DOUVILLÉ (96) p. 445. *P. orbigny*, descr. (p. 208, pl. xxvi), *P. paronai* (p. 206), *P. pedemontanus*, descr., incl. *Schizaster ozzanensis* (p. 208, pl. xxvi), *P. peroni* (p. 206); AIRAGHI (1). *P. spatangoides*; loc. cit.: ALESSANDRI (4) p. 283. *P. tergestinus* n. sp., Eocene, Pinguente, Istria; OPPENHEIM (229) p. 229, pl. xiv: "rappelle plutôt par sa forme générale certains *Linthia*"; LAMBERT in Review.
- Phyllacanthus baculosus*; FOURTAU (117) p. 540. †*P. imperialis*; BARRON & HUME (13) p. 872.
- †*Phyllobrissus*:—*P. gresslyi*; MAIRE (198). *P. kiliani*; PELLAT (237).
- †*Phymosoma* (incl. *Cyphosoma*):—*C.* sp.; NOETTLING (224) p. 54. *C. abnormale* discussed; GAUTHIER in FOURTAU (119) p. 48. *C. aublani* is not a *Thylechinus*; GAUTHIER in FOURTAU (119) p. 47. *C. blangianum*; OPPENHEIM (229) p. 168. *C. cenomanense*; GEINITZ (129) p. 277. *C. corneti*; FORIR (115) p. 16. *C. corollare*; ROWE (265) pp. 57, 73. *C. crebrum*; OPPENHEIM (229) p. 228. *C. cribrum*; CAREZ (55) p. 12. *C. gregoirei*; ROUSSEL (263) p. 15. *C. königi*; ROWE (265) pp. 54, 73. *C. magnificum*; GROSSOUVRE (145) p. 9. *C. pellati* (p. 12), *C. pseudomagnificum* (p. 20); CAREZ (55). *P. radiatum*; ELBERT (103) pp. 101, 103, 146: as *C.*; ROWE (266) p. 190, & (265) pp. 45, 73. *C. rousseli*; CAREZ (55) p. 24. *C. texana*; BOESE (36) p. 11. *C. thevestense*, Gregory's reference of this to *Coptosoma* criticised; FOURTAU (119) p. 31. *C. volanum* n. sp., "top of Lower Cretaceous" (Vola Limest.), Big Elm creek, Denton co., Texas; CRAGIN (77) p. 147, no fig.
- †*Placodiadema* Duncan, syn. of *Polydiadema* Lamb.; LAMBERT in PETITCLERC (240) p. 234.
- †*Phiolampas piosi*; BLANCKENHORN (30) p. 83.
- †*Polydiadema*, discussed and maintained; LAMBERT in PETITCLERC (240) pp. 234, 237.
- Pomelia* Loriol (vide Zool. Rec. 1900) preocc. Zittel, 1878, replaced by *Lefortia*; COSSMANN (74) see *Pomelopsis*.
- Pomelopsis*, nom. nov. pro *Pomelia* Lor. non Zitt., [but anticipated by *Lefortia* COSSMANN, 1900]; LORIOL (192) p. 45.
- Porocidaris* (?) *incerta* n. sp., Antarctic, young only; KOEHLER (172) p. 7, pls. i, iii. †*P. stellata*; CAREZ (55) p. 12.
- Pourtalesia* sp.; KOEHLER (173) p. 100: KOLTHOFF (174) pp. 176, 210. *P. jeffreysi*; ØSTERGREN (231): (?) KNIPOVITSCH (171).
- †*Praescutella cailliaudi*; FALLOT (106) p. 7.
- †*Prenaster*:—*P. alpinus*, descr.; AIRAGHI (1) p. 209, pl. xxv. *P. jutieri* and *P. subacutus*; CAREZ (55) p. 12.
- †*Protechinus paucituberculatus*; NOETTLING (224) pp. 54, 55.

- Psammechinus angulosus*; FOURTAU (117) p. 540. +*P. astensis* (SISM. as *Echinus*) descr.; AIRAGHI (1) p. 175, pl. xix. +*P. biarritsensis*; CAREZ (55) p. 12: descr.; AIRAGHI (1) p. 174, pl. xix. +*P. dubius*, descr.; FOURTAU (119) p. 60, pl. vi. +*P. fuchsi* n. sp., Vindobonian, Gebel Geneffe, Egypt; GAUTHIER in FOURTAU (119) p. 61, pl. vi. +*P. iheringi* n. sp., Patagonian [= Miocene?], G. of S. Jorge, Patagonia; LORIOL (192) p. 37, pl. iii. +*P. microtuberculatus*; DAINELLI (79) p. 674. *P. miliaris*; GADEAU DE KERVILLE (124) p. 37: KOEHLER (173) p. 99: *Pluteus*; MORTENSEN (214) p. 27 & fig. +*P. mirabilis*; BLANCKENHORN (31) p. 361. +*Echinus* (*P.*) *pulchellus*; DE STEFANO (85) p. 10.
- +*Pspephechinus*, discussed and maintained, with genotype *Stomechinus nichelini* Cott., and comprising *Psammechinus avellinus* Cott., *Echinus distinctus* Ag., *E. excavatus* Leske, *Stomechinus gauthieri* and *Psammechinus gilleroni* Cott., *Stomechinus greslyi* Lor., *S. locardi* Cott., *S. microcyphus* Wright, *S. morierei* Cott., *S. nudus* Wright, *S. schlumbergeri*, *S. sulcatus* & *Echinus vacheyi* Cott. (p. 238), *P. sulcatus* (p. 237); LAMBERT in PETITCLERC (240).
- +*Pseudoholaster* Pomel, discussed with reference to *Holaster meslei*, *H. fossarius*, *H. bicarinatus* etc.; GAUTHIER in FOURTAU (119) p. 35.
- +*Pseudocidaritis*:—*P. douarensis* n. sp., Cenomanian, Lebanon, spines only (p. 22, pl. ii), *P. zitteli* n. sp., Tithonian, Nesselssdorf, spines only (p. 11, pl. i); LORIOL (192).
- +*Pseudodiadema*, need for subdivision (p. 235), distinguished fr. *Trochotiaru* (p. 237); LAMBERT in PETITCLERC (240). *P. benettiae*; JUKES-BROWNE & SCANES (167) p. 119. *P. hemisphericum*; RASPAIL (253) p. 195. *P. libanoticum*; LORIOL (192) p. 24. *P. macilentum*, referred to *Diplopodia*; FOURTAU (119) p. 10. *P. malbosi*; CAREZ (55) p. 28. *P. ornatum*; JUKES-BROWNE & SCANES (167) p. 119. *P. parvulum*; RASPAIL (253) p. 195. *P. picteti*; MAIRE (198). *P. rotulare*; LEBEDEV (185) p. 207. *P. subcomplanatum*; FOURNIER (116) p. 18. *P. texanum*; CRAGIN (77) p. 161; HILL & VAUGHAN (151) p. 225, pl. liii. *P. variolare*; JUKES-BROWNE & SCANES (167) p. 119: HUME (156) p. 203, (157) p. 40, & (158) p. 927.
- +*Pseudopileus* n. g., allied to *Pileus*, with genotype *P. zumoffeni* n. sp., Turonian?, Lebanon; LORIOL (192) p. 30, pl. ii: arrangement of pores not a good character, because this is based on an internal cast not unlike a cast of *Pileus pileus* figd. by Cotteau; LAMBERT in Review.
- +*Pygaster*:—*P.* sp. non. descr.; PETITCLERC (240) p. 216. *P. granulosus* n. sp., Lower Bajocian, Comberjon, with n. var. *cobergonensis* proposed and figd., but ultimately rejected; LAMBERT in PETITCLERC (240) pp. 215, 239: syn. of *P. petitclerci*; LAMBERT in COSSMANN (76). *P. gresslyi*; RASPAIL (253) p. 195. *P. petitclerci* n. sp., Lower Bajocian, Comberjon, Hte-Saône, allied to *P. trigeri*; LAMBERT in PETITCLERC (239). *P. trigeri*, Bathonian type differs from Bajocian var.; loc. cit.: Bajocian, perhaps differs from Bathonian individuals; LAMBERT in PETITCLERC (240) pp. 239, 241. *P. umbrella*; RASPAIL (253) p. 195.
- +*Pygopistes douarensis* n. sp., Cenomanian, Lebanon; LORIOL (192) p. 32, pl. ii.
- +*Pygorynchus desori* and *P. grignonensis*; CAREZ (55) p. 12.
- +*Pygurus*:—*P. depressus*; BUXTORF (53) p. 56. *P. incisa*; MAIRE (198). *P. jurensis*; WUNSTORF (331) p. 35. *P. rostratus*; KILIAN in ROUVILLE (264).
- +*Pyrina*:—*P. atzensis*; NOETLING (224) p. 55. *P. bulloides* n. sp., *Exogyra texana* beds, Crane co., Texas; CRAGIN (77) p. 162, no fig. *P. gigantea*; NOETLING (224) pp. 54, 55. *P. incisa*; LEBEDEV (185) p. 207. *P. ovulum*; GROSSOUVRE (145) p. 9: ROUSSEL (263) p. 15.

- P. parryi*; BOESE (36) p. 11: distrib., with a "*rotundata* phase"; CRAIGIN (77) p. 162. *P. petrocoriensis*; ROUSSEL (263) p. 15. *P. rousselli*; CAREZ (55) p. 24.
- †*Rachiosoma* discussed; GAUTHIER in FOURTAU (119) p. 47.
- †*Rhabdocidar*:—*R. abbatei* n. sp., Mid-Eocene, Mokattam; GAUTHIER in FOURTAU (119) p. 38, pl. ii. *R. ardaensis* n. sp., Cenomanian, Lebanon, spines only; LORIOU (192) p. 20, pl. ii. *R. bonolai*, approaches *Porocidar*; BLANCKENHORN (32) p. 149. *R. caprimontana*, *R. copeioides* and *R. crassissima* †; MAIRE (199) p. 267. *R. guillardoti* n. sp., Mid. Eocene, Mokattam; GAUTHIER in FOURTAU (119) p. 36, pl. ii. *R. horrida*; BUKTORF (53) p. 48. *R. libanoticus* n. sp., Cenomanian, Lebanon, spine only; LORIOU (192) p. 19, pl. ii. *R. megalacantha*; MAIRE (199) p. 267. *R. orientalis* n. sp., Cenomanian, Lebanon, spines only; LORIOU (192) p. 21, pl. ii. *R. oxyrine*, v. *Cidar*. *R. rovasendai* n. sp., Bartonian near Gassino, based on spines in Rovasenda coll.; AIRAGHI (1) p. 171, pl. xix. *R. schweinfurthi* n. sp., Santonian, Berak el Gazal, Egypt; GAUTHIER in FOURTAU (119) p. 27, pl. i. *R. aff. thurmanni*; MAIRE (199) p. 267.
- †*Rovasendia* n. g. of *Spatangidae*, with genotype *R. canavari* n. sp., Bartonian of Gassino, coll. Rovasenda; AIRAGHI (1) p. 213, pl. xxvii.
- †*Runa desori*, descr.; AIRAGHI (1) p. 189, pl. xxii.
- †*Salenia*:—*S. austeni*; JUKES-BROWNE & SCANES (167) p. 119. *S. bourgeoisi*; ROUSSEL (263) p. 15: GROSSOUVRE (145) p. 9. *S. geometrica*; loc. cit. *S. granulosa*; ELBERT (103) p. 99: ROWE (265) pp. 5, 73. *S. mexicana*; BOESE (36) p. 11. *S. pellati*; CAREZ (55) p. 12. *S. petalifera*; JUKES-BROWNE & SCANES (167) p. 119. *S. prestensis* and *S. scutigera*; CAREZ (55) p. 24. *S. texana*, probably incl. *S. mexicana*; CRAIGIN (77) p. 163. *S. tunetana*, distinguished fr. *S. bathensis*, with which confused by Zittel, 1883; FOURTAU (119) pp. 8, 14.
- †*Sarsella*:—*S. duncani* Greg. compared with *Maretia fuchs*; OPPENHEIM in BLANCKENHORN (30) p. 116. *S. tuberosa* (Fraas, as *Eusputangus*) descr. and referred to Miocene; FOURTAU (119) p. 83, pl. vi: is a *Maretia*; LAMBERT in Review.
- †*Scagliaster* n. g.; MUNIER-CHALMAS (219).
- Schizaster* sp.; FOURTAU (117) p. 540.
- †*Schizaster*:—*S. acuminatus*; ZINNDORF (336) p. 123. *S. ambulacrum*; CAREZ (55) p. 12: AIRAGHI (1) p. 201. *S. ameghinoi*, redescri., and now first figd.; LORIOU (192) p. 38, pl. ii. *S. antiquus*; CAREZ (55) p. 20. *S. askharensis* n. sp., Lower Eocene, Wady Ashkar el Baharieh, young; GAUTHIER in FOURTAU (119) p. 54, pl. iv. *S. bellardii*, descr. (p. 203, pl. xxiv), *S. braidensis*, descr. (p. 203, pl. xxiv); AIRAGHI (1). *S. canaliferus*; SCALIA (272) pp. 6, 9, & (273) p. 2. *S. corsicus* and *S. desori*; AIRAGHI (1) p. 202. *S. djoulfensis*; LEBEDEV (185) p. 100. *S. fragilis*; KNIPOVITSCH (171): WHITEAVES (320) p. 63: 177 & 394 metres, large, pedicellariae, accessory intestinal siphon; KOEHLER (173) p. 99. *S. legraini*; BLANCKENHORN (30) p. 104. *S. leymeriei*; CAREZ (55) p. 12. *S. lucidus*, descr. (p. 202, pl. xxvi), *S. major*, descr. (p. 205, pl. xxiv); AIRAGHI (1). *S. mokattamensis* and individuals between this and *S. zitteli*; FOURTAU (119) p. 55, pl. ii. *S. ovatus*, v. sub *Hemiaster*. *S. ozzanensis*, v. *Pericosmus pedemontanus*. *S. parkinsoni* (pp. 53, 58), *S. cf. parkinsoni* (pp. 57, 72); SCHAFFER (274). *S. rimosus*; AIRAGHI (1) p. 202: CAREZ (55) p. 12: DOUVILLÉ (96) p. 445. *S. scillae*; SCHAFFER (274) p. 53: descr., distinguished fr. *S. canaliferus*, *S. eurynotus*, and *S. major*, perhaps incl. *S. verticalis*; AIRAGHI (1) p. 204, pl. xxv: this differs from the type of Malta and the neotype of Nice; LAMBERT in Review. *S. studeri*; AIRAGHI (1) p. 201: LEBEDEV (185) p. 100. *S. vianalis*; CAREZ (55) p. 12: AIRAGHI (1) p. 201: DOUVILLÉ (96) p. 445:

- (†) SCHAEFFER (274) p. 72: discussed, with special reference to petaloid fasciole; OPPENHEIM (229) p. 165.
- +*Scutella*:—*S. bonali*; FALLOT (106) p. 11. *S. deflersi* n. sp., Vindobonian, Genéffe, Egypt; GAUTHIER in FOURTAU (119) p. 63, pl. x. *S. geometrica* referred to *Monophora darwini*; BORCHERT (37) p. 2 pl. x. *S. isseli* n. sp., Tongrian of Dego, type in Mus. geol. Genova incl. *S. tenera* Pantanelli (p. 186, pl. xii), *S. lamberti* n. sp., Tongrian of Dego, type in Mus. geol. Roma, incl. *S. striatula* Airaghi (p. 11 pl. xii), *S. marianii* n. sp., Tongrian of Sassello, type in Mus. geol. Genova (p. 187, pl. xxi), *S. paronai* n. sp., Tongrian of Mornese, type in Mus. geol. Torino (p. 186, pl. xii); AIRAGHI (1). *S. striatula* FALLOT (106) p. 4, & (107) p. 972. *S. subrotunda*; AIRAGHI (1) p. 15 FALLOT (106) p. 20, & (107) p. 971. *S. subtrigona*; CAREZ (55) p. 12. *S. vindobonensis*; PAVLOVIC (234). *S. zitteli*; BLANCKENHORN (30) pp. 82, 83: descr.; FOURTAU (119) p. 66, pl. iii.
- +*Sismondia*:—*S. blanchenhorni* n. sp., Mid. Eocene, near Genéffe, Egypt; GAUTHIER in FOURTAU (119) p. 51, pl. iv. *S. marginalis* (p. 7), occitana (p. 6); FALLOT (106). *S. planulata*; CAREZ (55) p. 12. *S. taramei* n. sp., Bartonian of Caviggione, coll. Rovasenda; AIRAGHI (1) p. 178, pl. xii.
- Spatangus*:—†*S. austriacus*, descr. (p. 215, pl. xxvii), +*S. bottomianus* descr. (p. 216, pl. xxvii); AIRAGHI (1). +*S. cornicus*; AIRAGHI (1) p. 215: ALESSANDRI (4) p. 282. +*S. manzonii* v. *S. purpureus*. +*S. ocellatus* Deffr. of Rothpletz is *Maretia fuchsii*; BLANCKENHORN (30) pp. 76, 117. +*S. paretii*, descr.; AIRAGHI (1) p. 217, pl. xxvii. *S. purpureus*; KOEHLER (173) p. 99: NEWHIGIN (221) p. 143: TOSHI (302) p. 365: +DAINELLI (79) p. 674: *Pluteus*; MORTENSEN (214) p. 29 & fig.: descr., incl. *S. manzonii*; +AIRAGHI (1) p. 218. +*S. rovasendai* n. sp., Astian above Pecetto, coll. Rovasenda; AIRAGHI (1) p. 217, pl. xxvi.
- Sperosoma biserialatum* n. sp., near E. Africa, 1019 metres; DOEDERLEIN (94) p. 20.
- Sphaerechinus granularis*, general anat., specially the gut and vascular systems, process of nutrition; COHNHEIM (70): *Pluteus*; MORTENSEN (214) p. 24 & fig.: reaction to fresh water; RIGGENBACH (261) fertilisation (q. v.); BULLER (49): see also ii, v, iv & viii; VIGOU (312 & 313), HERBST (147), RAWITZ (256), & WINKLER (328). *S. roseus*, *Pluteus*; MORTENSEN (214) p. 25 & fig.
- +*Stegaster*:—*S. altus*, *S. bouillei*, & *S. heberti*; CAREZ (55) p. 6.
- Sterechinus* Koehl. allied to *Echinus*: *S. antarcticus* Koehl. 1900, desc. specimens 3–34 mm. diam.; KOEHLER (172) p. 8, pls. ii, iii, viii.
- Stereocidaris indica* n. sp. with n. var. *capensis*, *integra*, *africana*, *carinata*, *tricarinata*, various loc. in Indian Ocean, perhaps in *Dorocidaris tiara* and *D. alcocki* of Anderson; DOEDERLEIN (94) p. 19.
- +*Stirechinus*:—*S. minimus*, doubtful; AIRAGHI (1) p. 150. *S. acilla* DE STEFANO (85) p. 7.
- +*Stomechinus* discussed, with genotype *S. bigranularis*, and comprising *germinans*, *S. gyratus*, and *S. semiplacenta*; LAMBERT in PETITCLE (240) p. 237. *S. giratus* [sic]; MAIRE (199) p. 266.
- Strongylocentrotus chlorocentrotus* Brandt, Sitka, descr. and maintained LORIOL (192) p. 40, pl. iii. *S. droebachiensis*; KRIKOVITSCH (171) (*drobrachiensis* [sic]) KOEHLER (173) p. 99: MORTENSEN (214) p. 26 fig.: WHITEAVES (320) p. 62: (as *Echinus*) +BJØRLYKKE (29) p. 7 +BRØGGER (46) pp. 437, 520, 531: +SMITH et al. (287) p. 533: variations; RANKIN (252) p. 170: colour; CLARK (63) p. 331. *S. lividus* MORTENSEN (514) p. 26 & fig.: +SCALIA (273) p. 2: colour; MACE TOSH (197) p. 226: excretory cells; CUENOT (78) pp. 250, 252: ovum

- BOVERI (41): ovum and larva; BOVERI (43): see II, F, iii, iv, viii; DELAGE (90), RAWITZ (255 & 256), & VIGUIER (312 & 313) vide etiam sub *Toxopneustes*. *S. purpuratus*, colour, measurements, pores, one small specimen may be *S. franciscanus*; CLARK (63) p. 331: see II, F, viii; GIES (133).
- +*Thylechinus* discussed and maintained; GAUTHIER in FOURTAU (119) p. 45; syn. of *Micropsidia*; LAMBERT in Review. *T. aublini*, see *Phymosoma*.
- +*Tiarella* Pomel, v. *Trochotiara*; LAMBERT in PETITCLERC (240).
- +*Tiaridia batnensis* juv., 8 mm. diam.; FOURTAU (119) p. 8.
- +*Tiaromma*, distinguished from *Trochotiara*; LAMBERT in PETITCLERC (240) p. 236.
- +*Tiarotropus* Pom., syn. of *Psephechinus*; LAMBERT in PETITCLERC (240) p. 238.
- +*Toxaster*:—*T. cf. collegnoi*; PELLAT (237). *T. complanatus* and var.; BOEHM (34). *T. elegans*, *T. texanus*; BOESE (36) p. 11.
- +*Toxopatagus italicus*; AIRAGHI (1) p. 213.
- Toxopneustes lividus*, vide sub *Strongylocentrotus*. *T. (?) semituberculatus*, resembling *T. variegatus*, measurements; CLARK (63) p. 332. *T. variegatus*; CLARK (64) p. 344, & (66) p. 253: ovum; BOVERI (43) pp. 638, 642: see II, F, viii; MORGAN (212) & WILSON (326).
- +*Trachyster* discussed; OPPENHEIM (229) p. 167.
- +*Trematopygus oblongus*; GROSSOUVRE (145) p. 9.
- +*Tripylus fragilis*; BRØGGER (46) pp. 157, 641.
- +*Trochodiadema*, distinguished fr. *Trochotiara*; LAMBERT in PETITCLERC (240) p. 237.
- +*Trochotiara* **nom. nov.** pro *Tiarella* Pomel non Swains. nec Schulze, redefined with genotype *Diadema priscum* Ag. [used as neuter word by author, but must be feminine] (p. 236), +*T. depressum* [sic] (Ag. as *Diadema*), the species fixed, probably excludes English specimens fr. Inf. Ool. and Bathonian, and certainly that fr. Cornbrash (p. 233); LAMBERT in PETITCLERC (240).

(D.)—ASTEROIDEA.

Archaster tenuispinus; KNIPOVITSCH (171).

Asteracanthion, vide *Asterias*.

- Asterias* (incl. *Asteracanthion*):—*A. enopla*; WHITEAVES (320) p. 55. *A. forbesi*; MEAD (207); WHITEAVES (320) p. 54: see II, F, viii; MATHEWS (204). *A. glacialis*; NEWBIGIN (221) p. 127: TODD (302) p. 364: eye; PFEFFER (242): (?), *Bipinnaria*; MORTENSEN (214) p. 12 & fig.: absorbent and lacunar systems; CUÉNOT (78): osmosis; BOTTAZZI (38) p. 63: see II, F, iii, iv d, viii; DELAGE (88, 89, 90). *A. groenlandica*; *A. gunneri*, differences fr. type in Greenland specimen, colour in life and spirit; RANKIN (252) p. 172. *A. (?) hexactis*, variations in size of rays; CLARK (63) p. 329. *A. hispida*; TODD (302) p. 364. *A. mülleri*, eye; PFEFFER (242). *A. ochracea*; CLARK (63) p. 329. *A. panopla*; KNIPOVITSCH (171); ÖSTERGREN (231): arms 25 cm.; KOLTHOFF (174) p. 79. *A. polaris*; RANKIN (252) p. 171: WHITEAVES (320) p. 55. *A. rubens*; FAUVEL (108) p. 103: popular account; NEWBIGIN (221) p. 127: dissection; SHIPLEY & MACBRIDE (280) p. 239, text-fig.: general anatomy; MASTERMAN (203) p. 156: absorbent and lacunar systems; CUÉNOT (78) esp. p. 237: eye; PFEFFER (242): see II B ii d. 1; CHEVREL (59): pigment; GRIFFITHS & WARREN (144) as *Uraster*: regeneration; ENTZ (104) p. 10, fig. 6: feeding; BUERKEL (48) p. 26, & RAUSCHENPLAT (254) pp. 91, 108: *Bipinnaria*; MORTENSEN (214) p. 12 & fig.: and var. *violacea*; TODD (302) p. 364. *A. stellionura*; KNIPOVITSCH (171); WHITEAVES (320) p. 55. *A.*

- tenuispina*, eye; PFEFFER (242): see II, B, ii, d, 1; CLARK (66) p. 339. *A. vulgaris*; MEAD (207): WHITEAVES (320) p. 54: II B ii d, 2; DAVENPORT (83): see II, D, vii; MORGAN (210 & 213): sp. see II, D, iii, iv, vii; NELSON (220) p. 255.
- Asterina folium*; CLARK (66) p. 237: blue; CLARK (64) p. 340. *gibbosa*; FAUVEL (108) p. 81, & (109): TODD (302) p. 364: PFEFFER (242): absorbent and lacunar systems; CUÉNOT (78) p. 238.
- Astrogonium granulare*, eye; PFEFFER (242).
- Astropecten antillensis*, age-differences; CLARK (66) p. 236. *A. aurantiae* eye; PFEFFER (242): osmosis; BOTTAZZI (38) p. 63: general anatomy specially the gut and vascular systems, process of nutrition; COHN (70). *A. hispidus*, eye, structure and regeneration; PFEFFER (242). *A. duplicatus*, age-differences; CLARK (66) p. 236. *A. irregularis* TODD (302) p. 364. *A. jonstoni*, absorbent and lacunar system CUÉNOT (78) esp. p. 238. *A. mülleri* and *A. pentacanthus*, eye PFEFFER (242).
- Astropsis pulvillus*, eye; loc. cit.
- Bipinnaria* in general (p. 9), *B. Asteriae rubentis* (p. 12 & fig.), *B. laevis* (= *B. Asteriae glacialis* (p. 12 & fig.), *B. Luidiae ciliaris* (p. 10 & fig.), *B. Luidiae sarsi* (pp. 10, 11, and fig.), *B. metschnikoffi* (p. 9 & fig. MORTENSEN (214).
- + *Calliderma latum*; ROWE (265) pp. 63, 72.
- + *Crenaster laevis*; FALLOT (106) p. 3: REPÉLIN (260) p. 51.
- Cribrella* (incl. *Henricia*):—*C. laeviuscula*, *crassa* and *attenuata*, II, VAN Puget Sound; CLARK (63) p. 327. *C. oculata*, variations; RAKE (252) p. 174: absorbent and lacunar systems; CUÉNOT (78) esp. p. 23: development; MASTERMAN (202). *C. pectinata*; WHITEAVES (320) p. 53. *C. sanguinolenta*; KNIPOVITSCH (171): GADEAU DE KERVILL (124) p. 37: TODD (302) p. 364: WHITEAVES (320) p. 53: popular account; NEWBIGIN (221) p. 127: colour; M'INTOSH (197) p. 22. *C. spiculifera* n. sp., Puget Sound; CLARK (63) p. 328, pl. ii.
- Crossaster* sp.; ØSTERGREN (231): photograph; KOLTHOFF (174) p. 11. *C. papposus*, vide sub *Solaster*.
- Ctenodiscus crispatus*; KNIPOVITSCH (171): WHITEAVES (320) p. 43. + BRØGGER (46) p. 157.
- Dermasterias imbricata*, descr.; CLARK (63) p. 325, pl. i.
- Dictyaster xenophilus*, see II, D, viii, d.
- Echinaster crassispina*, proportions, distinguished from *E. spinosus*; CLARK (66) p. 238. *E. sentus*; SHIPLEY & MACBRIDE (280) pp. 237 & 24: text-fig. *E. sepositus*, eye, structure and regeneration; PFEFFER (242). *E. tenuispina*; CLARK (63) p. 329.
- Goniodon dilatatus*, redescr. and now first figd.; LORIOI (192) p. 43, pl. ii. *Henricia*, vide sub *Cribrella*.
- Hexaster obscurus*; ØSTERGREN (231): as *Pteraster*, with young 21 mm diam. attached (p. 117), photograph (p. 118): KOLTHOFF (174).
- Hymenaster pellucidus*; KNIPOVITSCH (171): ØSTERGREN (231): photographs; KOLTHOFF (174) p. 118.
- Hippasteria phryganea*; WHITEAVES (320) p. 50.
- Korethraster hispidus*; ØSTERGREN (231): photograph; KOLTHOFF (174) p. 118.
- Lasiaster cf. villosus*; ØSTERGREN (231).
- Leptasterias groenlandica*, *L. littoralis*, and *L. tenera*; WHITEAVES (320) p. 56.
- Leptoptychaster arcticus*; WHITEAVES (320) p. 49.
- Linckia guildingii*, large; CLARK (64) p. 340: see II, D, vii; CLARK (66) p. 237. *L. multiformis*, see II, D, vii; MORGAN (210 & 213). *L. multipora*, regeneration; ENTZ (104) p. 10, fig. 6.

- Lophaster furcifer*; KNIPOVITSCH (171): WHITEAVES (320) p. 52.
Luidia alternata; CLARK (66) p. 236. *L. ciliaris*; TODD (302) p. 364: eye; PFEFFER (242): autotomy; RIGGENBACH (261): *Bipinnaria*; MORTENSEN (214) p. 10 & fig. *L. clathrata*; CLARK (66) p. 237: colour, varies with loc.; CLARK (64) p. 339. *L. sarsi*, *Bipinnaria*; MORTENSEN (214) pp. 10, 11 & fig. *L. senegalensis*; CLARK (66) p. 237.
† *Nymphaster latum* (?); JUKES-BROWNE & SCANES (167) p. 119.
Odinia americana; WHITEAVES (320) p. 57.
Ophidiaster guildingii; CLARK (66) p. 237.
† *Oreaster*:—*O. bulbiformis* (pp. 63, 72), *O. pistilliferus* (p. 72); ROWE (265).
Palmipes membranaceus, eye; PFEFFER (242). *P. placenta*; TODD (302) p. 364.
Pedicellaster typicus; WHITEAVES (320) p. 53.
Pentaceros reticulatus, see II, B, ii, a; d, 1; CLARK (66) p. 237.
† *Pentagonaster quinquelobus*; CORNET (73) p. 253.
Pontaster hebitus; WHITEAVES (320) p. 48.
Porania pulvillus; TODD (302) p. 364.
Pseudarchaster intermedius var. *insignis*; WHITEAVES (320) p. 48.
Psilaster florae; WHITEAVES (320) p. 49.
Pteraster militaris; KNIPOVITSCH (171): RANKIN (252) p. 176: WHITEAVES (320) p. 52: eye; PFEFFER (242). *P. multispinus* n. sp., Puget Sound; CLARK (63) p. 326, pl. iii. *P. obscurus*, v. *Hexaster*. *P. pulvillus*; WHITEAVES (320) p. 52.
Pycnopodia helianthoides, large specimen, Port Townsend; CLARK (63) p. 329.
Retaster sp.; ØSTERGREN (231): photograph; KOLTHOFF (174) p. 118.
R. gracilis n. sp., Puget Sound, close to *Pteraster*; CLARK (63) p. 326, pl. iii.
Rhegaster tumidus; ØSTERGREN (231): var. *tuberculatus*; KNIPOVITSCH (171).
Solaster eurlii; WHITEAVES (320) p. 51. *S. endeca*; KNIPOVITSCH (171): NEWBIGIN (221) p. 129: RANKIN (252) p. 175: TODD (302) p. 364: WHITEAVES (320) p. 51: colour; M'INTOSH (197) p. 226: var. *decemradiata*, variation in number of rays; CLARK (63) p. 325: var. *syrtensis*; ØSTERGREN (231) et v. infra. *S.* (vel *Crossaster*) *papposus*; GADEAU DE KERVILLE (124) p. 37: KNIPOVITSCH (171): RANKIN (252) p. 174: TODD (302) p. 364: WHITEAVES (320) p. 52: popular account and fig.; NEWBIGIN (221) p. 128: colour; M'INTOSH (197) p. 225: absorbent and lacunar systems; CUÉNOT (78): eye; PFEFFER (242): all 10-rayed, variations from norm, this with *S. affinis* and var. *septentrionalis* are "local varieties of an extremely variable species"; RANKIN (252) p. 174: var. *septentrionalis*; KNIPOVITSCH (171). *S. syrtensis*; WHITEAVES (320) p. 51: vide etiam sub *S. endeca*.
† *Sphaerites scutatus*; LEBEDEV (185) p. 111.
Stichaster albulus; KNIPOVITSCH (171): RANKIN (252) p. 173: WHITEAVES (320) p. 54. *S. roseus*; TODD (302) p. 364.
Tostia eximia, *T. granularis*, circumpolar; WHITEAVES (320) p. 49.
Tremaster mirabilis; WHITEAVES (320) p. 50.
Tylaster willetti; ØSTERGREN (231): photographs; KOLTHOFF (174) p. 96.
Uroaster rubens, v. *Asterias rubens*.
Zoroaster fulgens?, cf. also *Z. ackleyi*, Sladen's figures criticised; CLARK (66) p. 237.

(E.)—OPHIUROIDEA.

History of the classifications of *Oph.*, esp. by Ijungman, Luetken, Haed Perrier, F. J. Bell, Gregory, the last three being mainly followed the system proposed:—Class, *Ophiuroidea*: Ord. I. *Zygophiuræ* Subord. A. *Brachyophiuræ*: Fam. *Ophiodermatidae*, *Ophiolepididae* Subord. B. *Nectophiuræ*: Sectio a. *Oligodontida*: Fam. *Amphiodidae*, *Ophiocelidae*, *Ophiacanthidae*: Sectio β. *Polyodontida*: Fam. *Ophioconidae*, *Ophiotrichidae*: Ord. II. *Streptophiuræ*: Fam. *Ophiomyxidæ*: Ord. III. *Cladophiuræ*: Fam. *Astrophytidæ*: Subfam. *Astroscem[ati]næ*, *Trichasterinæ*, *Euryalinæ*; diagnoses are given the preceding (exc. of *Ophiuroidea*) and of genera, under which are lists of spp., followed by index to trivial names; MEISSNER in HAMANN (146) pp. 902-966. [Among noteworthy omissions are all ertis genera and *Astrophysa*, while Verrill's genera of 1899 are regarded as synonyms.]

Acantharachna, v. *Ophiomastix*.

†*Aeroura*:—*A. prisca* (p. 49), *A. squamosa* (p. 48); GRASSMUELLER (137). *Amphilepis*, defined, list of spp.; MEISSNER in HAMANN (146) p. 93.

A. norvegica, 343 metres; KOEHLER (173) p. 102.

Amphiodia (?) *planispina* (p. 247), *A. pulchella* (p. 248), *A. rüsei* (p. 248) CLARK (66).

Amphioplus stearnsii; CLARK (66) p. 248.

Amphipholis, v. etiam sub *Amphiura*. *A. elegans*; WHITEAVES (32) p. 59. *A. goesi*, *A. limbata*, and *A. subtilis*; CLARK (66) p. 247.

Amphipsila discussed, *Ophiopsila fulva* cannot be taken as genotype, the leaves only *A. maculata*; CLARK (66) p. 245: syn. of *Ophiopsila* MEISSNER in HAMANN (146) p. 932.

Amphiura, defined, incl. *Amphipholis*, list of spp.; op. cit. p. 929. *A.* see II, d, vii; DAWYDOFF (84). *A. belgicae* Koehl. 1900, Antarctic descr.; KOEHLER (172) p. 27, pl. vii. *A. bihamula* n. sp., Porto Rico 91 fms.; CLARK (66) p. 247, pl. xiv. *A. canadensis*; WHITEAVES (32) p. 59. *A. chiajii*; TODD (302) p. 365. *A. elegans*; NEWBIGIN (22) p. 133. *A. exigua*; WHITEAVES (320) p. 59. *A. filiformis*; TODD (302) p. 365: 175 metres; KOEHLER (173) p. 102: (?), *Pluteus* MORTENSEN (214) p. 20 & fig. *A. flexuosa*; CLARK (66) p. 247. *A. polita* Koehl. 1900, Antarctic, descr., and compared with all Arctic and Subantarctic spp. of genus; KOEHLER (172) p. 29, pls. vii, viii. *A. squamata*; KOEHLER (173) p. 102: mouth-parts; ZUR STRASSEN (338). *A. stimpsoni*; CLARK (66) p. 247. *A. sudevalii*; RANKIN (252) p. 178: WHITEAVES (320) p. 59. *A. ? urtica*, disc 6 mm., ray 300 mm.; CLARK (63) p. 330.

Amphiuridae, defined; MEISSNER in HAMANN (146) p. 927.

Astroceras, defined; op. cit. p. 952.

Astrochele, defined; op. cit. p. 950.

Astroclon, defined; op. cit. p. 954.

Astrocnida, defined; op. cit. p. 953.

Astrogomphus, defined; op. cit. p. 950.

Astronyx, defined, list of spp.; op. cit. p. 951. *A. loveni*; KOEHLER (173) p. 103: WHITEAVES (320) p. 62.

Astrophis, defined; MEISSNER in HAMANN (146) p. 949.

Astrophysa, mouth-parts; ZUR STRASSEN (338).

Astrophytidæ, sole fam. of *Cladophiuræ*; MEISSNER in HAMANN (146) p. 949.

Astrophyton, defined, list of spp.; op. cit. p. 955. *A. agassisi*, photograph of large example; KOLTHOFF (174) p. 153. *A. clavatum*; BELL (25) *A. eucnemis*; KOLTHOFF (174) p. 152.

- Astroporpa*, defined; MEISSNER in HAMANN (146) p. 950. *A. annulata*; CLARK (66) p. 251.
- Astroschema*, defined, list of spp.; MEISSNER in HAMANN (146) p. 949. *A. oligactes*; CLARK (66) p. 251.
- Astroschem[at]inae*, n. subfam. of *Astrophytidae*; MEISSNER in HAMANN (146) p. 949.
- Astrotoma*, defined; op. cit. p. 951.
- Brachyophiurae*, defined as sub-order of *Zygophiurae*; op. cit. p. 915.
- Cladophiurae*, defined; op. cit. p. 949.
- Euryale*, defined; op. cit. p. 955.
- Euryalinae*, defined; op. cit. p. 954.
- Gorgonocephalus*, defined, list of spp.; op. cit. p. 954. *G. sp.*; KNIPOVITSCH (171). *G. agassizii*; KOEHLER (173) p. 102; WHITEAVES (320) p. 62. *G. eucnemis*; op. cit. p. 61. *G. lamarcki*; op. cit. p. 62.
- Gymnolophus*, defined; MEISSNER in HAMANN (146) p. 945.
- Gymnophiura*, defined; op. cit. p. 926.
- Hemieuryale*, defined, incl. *Ophioplus* Verrill; op. cit. p. 948.
- Hemipholis*, defined, list of spp.; op. cit. p. 928.
- Luetkenia* Brock, defined; op. cit. p. 944.
- Nectophiurae*, defined as sub-order of *Zygophiurae*; op. cit. p. 927.
- Neoplax*, defined; op. cit. p. 946.
- Oligodontida*, n. sect. of *Nectophiurae*, to contain *Amphiuridae*, *Ophiophilidae*, and *Ophiacanthidae*; op. cit. p. 927.
- Ophiacantha*, defined, list of spp.; op. cit. p. 935. *O. abyssicola*; KOEHLER (173) p. 102. *O. anomala*; WHITEAVES (320) p. 60. *O. (Ophiectodia) antarctica* Koehl. 1900, Antarctic; KOEHLER (172) p. 34, pl. iv. *O. bidentata*; CLARK (66) p. 249; KNIPOVITSCH (171); KOEHLER (173) p. 102; RANKIN (252) p. 179; WHITEAVES (320) p. 60. *O. granulifera*; op. cit. p. 61. *O. ophiactoides* n. sp., Porto Rico, 10 fms.; CLARK (66) p. 249, pl. xv. *O. (Ophiolimna) polaris* Koehl. 1900, Antarctic; KOEHLER (172) p. 32, pl. iii. *O. spectabilis* (p. 60), *O. varispina* (p. 61); WHITEAVES (320).
- Ophiacanthidae*, defined; MEISSNER in HAMANN (146) p. 935.
- Ophiactis*, defined, list of spp.; op. cit. p. 929. *O. balli*, and *O. corallicola*; KOEHLER (173) p. 102. *O. krebsii*, *O. longibrachia* n. sp., Vieques Id., W. Indies, 6 fms., resembles *O. dispar* (pl. xiv), *O. loricata*; CLARK (66) p. 246. *O. mulleri*, 6-rayed, coloured like *O. savignyi*; CLARK (64) p. 340.
- Ophialcaea glabra* n. sp., Porto Rico, but differs from normal *Ophialcaea* in covering of disc; CLARK (66) p. 249, pl. xv.
- Ophiambyx*, defined; MEISSNER in HAMANN (146) p. 927.
- Ophiarachna*, defined, list of spp.; op. cit. p. 939. *O. incrassata*, mouth-parts; ZUR STRASSEN (338).
- Ophiarthrum*, defined, list of spp.; MEISSNER in HAMANN (146) p. 940.
- Ophiectodia*, v. sub *Ophiacantha* as sub-gen.
- Ophiernus*, defined, list of spp.; MEISSNER in HAMANN (146) p. 922.
- Ophiaethiops*, defined; op. cit. p. 945.
- Ophioblenna*, defined; op. cit. p. 936.
- Ophiobrachion*, defined; op. cit. p. 948.
- Ophiobyrsa*, defined, list of spp.; op. cit. p. 947.
- Ophiocamax*, defined, list of spp.; op. cit. p. 934. *O. gigas* Koehl. 1900, Antarctic, descr., compared with *O. austera*, *O. fasciculata*, and *O. hystrix*; KOEHLER (172) p. 30, pl. ii.
- Ophiocampsis*, defined; MEISSNER in HAMANN (146) p. 942. *O. pellicula*, see II, F, iv.
- Ophiocentrus*, defined; MEISSNER in HAMANN (146) p. 936.
- Ophioceramias*, defined, list of spp.; op. cit. p. 919.
- Ophiochaeta*, defined; op. cit. p. 923.

- Ophiociton*, defined, list of spp.; MEISSNER in HAMANN (146) p. 928.
Ophiochondrus, defined, list of spp.; op. cit. p. 948.
Ophiocytra, defined; op. cit. p. 932.
Ophiocnemis, defined; op. cit. p. 943.
Ophiocnida, defined, incl. *Amphitimna* Verrill, list of spp.; op. cit. p. 1.
O. brachiata; FAUVEL (109); TODD (302) p. 365.
Ophiocoma, defined, list of spp.; MEISSNER in HAMANN (146) p. 939.
echinata; CLARK (64) p. 340, & (66) p. 245. *O. minuta* (?), *O. neglecta* and *O. nigra*; TODD (302) p. 365. *O. pumila*; CLARK (66) p. 245.
O. 6-rayed; CLARK (64) p. 340. *O. riisei*; CLARK (66) p. 245.
Ophiocomidae, defined; MEISSNER in HAMANN (146) p. 939.
Ophiocoris, defined, incl. *Pectinura* Heller, list of spp.; op. cit. p. 918.
Ophiocreas, defined, list of spp.; op. cit. p. 951.
Ophiocrene, defined; op. cit. p. 956.
Ophioceten, defined, list of spp.; op. cit. p. 926. *O. dubium* n. sp. (p. pl. vi), *O. megaloplar* n. sp. (p. 22, pl. vi): Antarctic; KOEHLER (172). *O. sericeum*; KOEHLER (173) p. 101; RANKIN (252) p. 1.
Ophiocymbium, defined; MEISSNER in HAMANN (146) p. 939.
Ophioderma, defined, list of spp.; op. cit. p. 915. *O. longicauda*, autototus RIGGENBACH (261): metabolism; COHNHEIM (70) p. 51.
Ophiodermatidae, defined; MEISSNER in HAMANN (146) p. 915.
Ophiogeron, defined; op. cit. p. 937.
Ophioglypha, syn. of *Ophiura*; op. cit. p. 924. *O. albida*; KOEHLER (173) p. 100: mouth-parts; ZUR STRASSEN (338): feeding; RAUWENPLAT (254) pp. 91, 149: *Pluteus*; MORTENSEN (214) p. 15 & fig. *O. bullata*; SHIPLEY & MACBRIDE (280) pp. 249, 252, text-fig. *carinifera* n. sp., "quelque analogie avec *O. saurura* Verrill; mais heureusement l'absence de dessin rend la comparaison bien difficile" (p. 14, pl. i), *O. doderleini* n. sp. (p. 19, pl. v), *O. frigida* n. sp. allied to *O. inornata* (p. 16, pl. v), *O. gelida* n. sp., allied to *O. inornata* (p. 17, pl. i): Antarctic; KOEHLER (172). *O. Jungmanni* Porto Rico, slight differences from type, which was from Brazil; CLARK (66) p. 243. *O. luetkeni*, slight variations; CLARK (63) p. 3. *O. nodosa*; KNIPOVITSCH (171); WHITEAVES (320) p. 58. *O. robusta* loc. cit.: a specimen, perh. young *O. acerrater*; CLARK (66) p. 24 diam. 3-8 mm., variation of dorsal arm-plates; KOEHLER (173) p. 10 colour in spirit, age-differences; RANKIN (252) p. 176. *O. savignyi* KOEHLER (173) p. 100; RANKIN (252) p. 176; WHITEAVES (320) p. 58. *O. signata*, and *O. sturwitszi*; op. cit. p. 58. *O. texturata*; KOEHLER (173) p. 100: *Pluteus*; MORTENSEN (214) p. 15 & fig.
Ophiogona, defined; MEISSNER in HAMANN (146) p. 916.
Ophiogymna, defined; op. cit. p. 944.
Ophiohelidae, defined; op. cit. p. 933.
Ophiohelus, defined; op. cit. p. 934.
Ophiolebes, defined, list of spp.; op. cit. p. 936. *O. acanella*; WHITEAVES (320) p. 61.
Ophiolepididae, defined; MEISSNER in HAMANN (146) p. 918.
Ophiolepis, defined, list of spp.; op. cit. p. 920, v. etiam sub *Ophiophila* et *Ophiura*. *O. elegans*; CLARK (66) p. 242.
Ophiolimna, v. sub *Ophiacantha*, as sub-gen.
Ophiolipus, defined; MEISSNER in HAMANN (146) p. 922.
Ophiolophus, defined; op. cit. p. 945.
Ophiomastix, defined, incl. *Acantharachna* E. Smith, list of spp.; op. cit. p. 940.
Ophiomastus, defined, list of spp.; op. cit. p. 923. *O. ludwigi* Koel 1900, Antarctic, descr.; KOEHLER (172) p. 23, pls. iii, iv.
Ophiomaza, defined, list of spp.; MEISSNER in HAMANN (146) p. 943.
Ophiomitra, defined, list of spp.; op. cit. p. 933.

- Ophiomusium*, defined, list of spp.; op. cit. p. 924: mouth-parts; ZUR STRASSEN (338). *O. eburneum elegans* (p. 243), *O. sculptum* (p. 244), *O. validum*, slight differences from type, approach *O. lymani* (p. 244); CLARK (66).
- Ophiomyces*, defined, list of spp.; MEISSNER in HAMANN (146) p. 933.
- Ophiomyza*, defined, incl. *Ophiodera* Verrill, list of spp.; op. cit. p. 947. *O. flaccida*; CLARK (66) p. 251: numbers, measured, colour; CLARK (64) p. 340.
- Ophiomyzidae*, defined; MEISSNER in HAMANN (146) p. 946.
- Ophioncus*, defined; op. cit. p. 916.
- Ophionema*, defined; op. cit. p. 938.
- Ophionephthys*, defined, list of spp.; op. cit. p. 938.
- Ophionereis*, defined, incl. *Ophiotriton* Doed., list of spp.; op. cit. p. 933. *O. dubia* first recorded from W. Indies (p. 248), *O. olivacea* n. sp., Porto Rico (p. 248, pl. xiv); CLARK (66). *O. reticulata*; CLARK (64) p. 340, & (66) p. 249.
- Ophiopaepule*, defined; MEISSNER in HAMANN (146) p. 919.
- Ophiopeza*, defined, list of spp.; op. cit. p. 917.
- Ophiopezella*, defined; op. cit. p. 917.
- Ophiopholis* (*Ophiotelepis*), defined, list of spp.; op. cit. p. 927. *O. aculeata*; KNIPOVITSCH (171): KOEHLER (173) p. 101: RANKIN (252) p. 178: TODD (302) p. 365: WHITEAVES (320) p. 60: +SMITH et al. (287) p. 533: popular account; NEWBIGIN (221) p. 132: *Pluteus*; MORTENSEN (214) p. 18 & fig. *O. caryi*, colour; CLARK (63) p. 330.
- Ophiophragmus*, defined, list of spp.; MEISSNER in HAMANN (146) p. 931.
- Ophiophyllum*, defined; op. cit. p. 922.
- Ophiopinax*, defined; op. cit. p. 917.
- Ophioplax*, defined; op. cit. p. 932.
- Ophiopleura*, defined; op. cit. p. 923. *O. borealis*; KNIPOVITSCH (171): 650-1185 metres, 4 cm. diam., incl. *O. arctica*; KOEHLER (173) p. 101.
- Ophioplinthaca spinissima* [sic] n. sp., Porto Rico, 97-120 fms., but differs from normal *Ophioplinthaca* in absence of special marginal scales; CLARK (66) p. 250, pl. xv.
- Ophioplinthus*, defined; MEISSNER in HAMANN (146) p. 921: mouth-parts; ZUR STRASSEN (338).
- Ophioplocus*, defined, list of spp.; MEISSNER in HAMANN (146) p. 920.
- Ophiopluteus* in general, list of spp. (p. 13), *O. clapedei* (p. 20 & fig.), *O. compressus* (p. 16 & fig.), *O. coronatus* (p. 17 & fig.), *O. dubius* (p. 16 & fig.), *O. mancus* "n. sp.", ? *O. Amphiuroidae filiformis* (p. 20 & fig.), *O. Ophioglyphae albidus* (p. 15 & fig.), *O. Ophioglyphae texturatus* (p. 15 & fig.), *O. Ophiopholis aculeatae* (p. 18 & fig.), *O. Ophiothricis fragilis* (pp. 14, 18 & fig.), *O. ramosus* (p. 19 & fig.); MORTENSEN (214).
- Ophiopristis hirsuta*; CLARK (66) p. 250.
- Ophiopsammium*, defined; MEISSNER in HAMANN (146) p. 944.
- Ophiopsila*, defined, incl. *Amphipsila* Verrill, list of spp.; op. cit. p. 932. *O. fulva*, slight differences from type, is not allied to *Amphipsila maculata* Verrill (p. 245), *O. riisei* (p. 246); CLARK (66).
- Ophiopteris*, defined; MEISSNER in HAMANN (146) p. 940.
- Ophiopteron*, defined; op. cit. p. 941.
- Ophiopus*, defined, incl. *Ophiaregma* Sars; op. cit. p. 928.
- Ophiopyren*, defined, list of spp.; op. cit. p. 918. *O. regulare* Koehl. 1900, Antarctic, descr.; KOEHLER (72) p. 26, pl. viii.
- Ophiopyrgus*, defined; MEISSNER in HAMANN (146) p. 923. *O. australis* Koehl. 1900, Antarctic, descr., a very young specimen of 2 mm. diam. is alone known; KOEHLER (172) p. 24, pl. vii.
- Ophiosciasma*, defined; MEISSNER in HAMANN (146) p. 937.
- Ophiocolox*, defined, list of spp.; op. cit. p. 937. *O. sp.*; KNIPOVITSCH

- (171). *O. glacialis*; KOEHLER (173), p. 102: WHITEAVES (320) p. 102.
O. serratus n. sp., Porto Rico, 91 fms.; CLARK (66) p. 150, pl. xiv.
Ophiosphaera, defined; MEISSNER in HAMANN (146) p. 946.
Ophiostigma, defined, list of spp.; op. cit. p. 927. *O. isacantha*; CLARK (64) p. 344, & (66) p. 249.
Ophioteris, defined; MEISSNER in HAMANN (146) p. 947.
Ophiothamnus, defined, list of spp.; op. cit. p. 934.
Ophiethela, defined, list of spp.; op. cit. p. 943.
Ophietholia, defined; op. cit. p. 935.
Ophiothrix, defined, incl. *Ophionyx* M. & T., list of spp.; op. cit. p. 944.
O. angulata; CLARK (66) p. 244. *O. fragilis*; FAUVEL (109): 7 (302) p. 365: popular account and fig.; NEWBIGIN (221) p. 133.
Pluteus; MORTENSEN (214) pp. 14, 18 & fig.: var. *pentaphyllus* KOEHLER (173) p. 102. *O. oerstedii* and *O. zuesenii*; CLARK (64) p. 244.
Ophiothyreus, defined; MEISSNER in HAMANN (146) p. 919. *O. sp.* CLARK (66) p. 243.
Ophiotoma, defined; MEISSNER in HAMANN (146) p. 937.
Ophiotrema, defined; op. cit. p. 938.
Ophiotrichida, defined; op. cit. p. 941.
Ophiotrichoides, defined; op. cit. p. 942.
Ophiotriton, syn. of *Ophionereis*; op. cit. p. 933.
Ophiotrochus, defined; op. cit. p. 919.
Ophiotypa, defined; op. cit. p. 925.
Ophiozona, defined, list of spp.; op. cit. p. 921. *O. impressa*, *O. compta*, and *O. tessellata*; CLARK (66) p. 243.
Ophiura, defined, incl. *Ophiolepis* M. & T., and *Ophioglypha* Lym., in spp.; MEISSNER in HAMANN (146) p. 924: abactinal surface, NEWBIGIN (221) p. 130. + *O. sp.*; ROWE (265) p. 72. *O. affinis* TODD (302) p. 365. *O. albida*; NEWBIGIN (221) p. 133: TODD (302) p. 365: + SMITH et al. (287) p. 533. *O. appressa*; CLARK (64) p. 242. & (66) p. 242. *O. brevicauda* and *O. brevispina*; loc. cit. *O. ciliata* TODD (302) p. 365. *O. cinerea*; CLARK (66) p. 242. *O. lacertina* NEWBIGIN (221) p. 133: colour; M'INTOSH (197) p. 226. *O. ruficauda*; CLARK (66) p. 242. + *O. sarsi*; BJØRLYKKE (29) p. 157. BRØGGER (46) p. 157.
Ophiurida, errore pro *Ophiocnida* (q. v.); FAUVEL (109).
Ophiuropsis, defined; MEISSNER in HAMANN (146) p. 952.
Paramphiura, defined; op. cit. p. 930.
Pectinura Forbes, defined, incl. *Ophiarachna* pars, list of spp.; op. cit. p. 916.
Pluteus paradoxus = *Ophiopluteus Ophioglyphae albidæ* et *O. textura* MORTENSEN (214) p. 15.
Polyodontida, n. sect. of Nectophiuræ, to contain *Ophiocomidae*, *Ophiotrichidae*; MEISSNER in HAMANN (146) p. 939.
Sigsbeia, defined; op. cit. p. 948.
Sthenocephalus, defined; op. cit. p. 955.
Streptophiuræ, defined; op. cit. p. 946.
Trichaster, defined; op. cit. p. 953.
Trichasterinae, defined; op. cit. p. 953.
Zygophiuræ, defined; op. cit. p. 915.

F. CRINOIDEA*.

Short popular account, specially of "Tesselés," with classification according to tegmen; FRITEL (122).

- †*Acanthocrinus longispina*; BEUSHAUSEN (27) p. 78.
 †*Actinocrinus*:—*A.* ? sp.; DE STEFANI (84A) p. 8. *A.* cf. *armatus*; DESTINEZ (93) p. 21.
Actinometra meridionalis, and *A. rubiginosa*; CLARK (66) p. 235. Vide etiam sub *Uintacrinus*.
 †*Agaricocrinus bellatrema* Hall, type referred to *A. ornatrema*; WHITFIELD & HOVEY (321) p. 365.
Antedon, relations of gonads, parietal canal, and water-vascular system; RUSSO (269). *A.* sp.; KNIPOVITSCH (171). *A. acoela*, young; SHIPLEY & MACBRIDE (280) p. 269, text-fig. *A. bifida* [incl. *rosacea*]; FAUVEL (108) p. 81, and (109): TODD (302) p. 366: transverse section; SHIPLEY & MACBRIDE (280) p. 270, text-fig.: autotomy; RIGGENBACH (261): regeneration; PRZIBRAM (249 & 250). †*A. burgundiacae*; MAIRE (199) p. 268. *A. eschrichti*; KOLTHOFF (174) pp. 79, 206: RANKIN (252) p. 179: WHITEAVES (320) p. 43: 40–430 metres; KOEHLER (173) p. 103. *A. hageni*; CLARK (66) p. 235. *A. phalangium*, 48–650 metres; KOEHLER (173) p. 103. *A. quadrata*; WHITEAVES (320) p. 44: colour in life, relations to *A. eschrichti* discussed; RANKIN (252) p. 180. *A. rosacea*, v. *A. bifida*. *A. tenella*; WHITEAVES (320) p. 43. †*A. tessoni*; RASPAIL (253) p. 195.
 †*Aorocrinus*:—*A. casedayi* and n. var. *charlestownensis*, *A. depressus* n. sp.: Hamilton group, Charlestown, Ind.; ROWLEY in GREENE (142) p. 65, pl. xxiii. *A. wachemuthi* n. sp., Lower Burlington Limest., Louisiana, Mo.; ROWLEY (267) p. 348, pl.
 †*Apiocrinus*:—*A.* cf. *annulatus* (p. 111), *A. impressus* (p. 255); LEBEDEV (185).
Bathycrinus sp.; KOLTHOFF (174) p. 210. *B. carpenteri*; ÖSTERGREN (231).
 †*Batocrinus springeri*, referred to *Cactocr.*; ROWLEY (267) p. 348.
 †*Bourgueticrinus* sp.; ROWE (265) pp. 57, 62, 72: columnals; GEINITZ (129) p. 277.
 †*Cactocrinus springeri* (Rowley, as *Batocr.*); ROWLEY (267) p. 354, pl.
 †*Cainocrinus* v. sub *Pentacrinus*.
 †*Ceriocrinus*:—*C. hemisphericus* (pp. 243, 245, 251), *C. missouriensis* (p. 243), *C. nodulifera* (p. 243); BEEDE & ROGERS (23).
 †*Cromyocrinus sangamonensis*; op. cit. p. 240.
 †*Ctenocrinus*:—*C. decadactylus*?, stem 2.5 metres; FOLLMANN (114) p. 69: var. *hercynica*; BEUSHAUSEN (27) pp. 43, 77. *C. typus*; RADOVANOVIC (251).
 †*Cupressocrinus*:—*C. impressus*, incl. *Poteriocr. maccoyanus*; PEACH (235) p. 222: v. etiam sub *Hydreionocr.* et *Zeacr.* *C. urogalli*; BEUSHAUSEN (27) pp. 41, 78, 97.
 †*Cyathocrinus*:—"C." *brachydactylus*; op. cit. p. 78. *C.* ? *dubius*; GRASSMUELLER (137) p. 15. *C. pinnatus*; DORLODOT (95) p. 174: PIERPONT (243) p. 169. *C. stillatus*; BEEDE & ROGERS (23) p. 240.
 †*Cyrtocrinus*:—*C. marginatus* n. sp. not diagnosed, but deformed examples figd., *C. thersites*, deformed examples figd.; REMEŠ (259) pl. i.
 †*Delocr. hemisphaericus*; BEEDE (22) p. 79.
 †*Encrinurites* [i.e. *Entrochus*] sp.; ŽELÍZKO (335) pp. 230, 232.
 †*Encrinurus*:—*E. granulosus*; DE STEFANI (84A) pp. 12, 17, 19. *E. lilii-formis*; GRASSMUELLER (137) pp. 30, 42, 46: fig.; FRITEL (122).

* Names that are sometimes given the termination *-ites* (e.g. *Pentacrinites*) are here treated as always ending in *-us*.

- +*Entrochus*, gen. et sp. indet.; BATHER in CHAPMAN (57) p. 144, Vide etiam *Encrinetes*.
- +*Erisocrinus*:—*E. toddanus* and *E. typus*; BEEDE & ROGERS (23) p. 1.
- +*Eucalyptocrinus*:—*E. crassus*; FOERSTE (113) p. 443. *E. decoratus* trib.; GRABAU (135) p. 157, & fig. *E. elrodi*, *E. magnus*, *E. and E. tuberculatus*?; FOERSTE (113) p. 443.
- +*Eugeniocrinus*:—*E.* sp. nondescr.; LEBEDEV (185) p. 255. *E. pressus*; DE STEFANI (84A) p. 29. *E. hoferi*; LEBEDEV (185) p. *E. holopiformis* n. sp. not diagnosed, but deformed examples *E. zitteli*, deformed examples figd.; REMES (259) pl. ii.
- +*Eupachyocrinus*:—*E.* sp. (p. 330), *E. cragini* (p. 332); KEYES (169) *harii*, *E. magister*, and *E. sphaeralis*; BEEDE & ROGERS (23) p. 2.
- +*Forbesiocrinus*, not valid, the type is a *Taxocr.*, Belgian specimen *Onychocr.*, American species are *Sagenocr.*; SPRINGER (290) p. 7.
- +*Gennaeocrinus carinatus* n. sp., Hamilton group, Charlestown, Ind. in Massachusetts Inst. of Technology, compared with *G. cornu*, *G. kentuckiensis*, and *G. eucharis*; WOOD (330).
- +*Gilbertsocrinus papillatus* (Hall) more like to *G. robustus* than to *G.* to which it was reld. by WACHSM. & SPRING.; WHITFIELD & H (321) p. 367.
- +*Glyptocrinus*:—*G. decadactylus*; RUEDEMANN (268) p. 514. *G. plus* GRABAU (135) p. 157 & fig.
- +*Heterocrinus heterodactylus*; RUEDEMANN (268) p. 516.
- +*Homocrinus scoparius*; STEVENSON (291) p. 368.
- +*Hydreionocrinus*:—*H. calyx*; SMITH (285). *H. globularis*; PEACH p. 223: v. etiam sub *Ulocr.* *H. impressus*; MORTON (218) p. 6 etiam sub *Cupressocr.* *H. pentagonus*; BEEDE & ROGERS (23) p. *H. scoticus*; SMITH (285). *H. subsinuatus*?; BEEDE & ROGERS p. 249.
- +*Hystericrinus schwerdi* n. sp., Upper Coblenzian of Laubach near Cob FOLLMANN (114).
- +*Ichthyocrinus*:—*E. laevis*, distrib.; GRABAU (135) p. 159 & fig. *I. formis*, fig.; FRITEL (122). *Isocrinus* vide sub *Pentacrinus*.
- +*Lecanocrinus*:—*L. macropetalus*, "may occur at Niagara"; GRABAU p. 160 & fig. *L. pusillus*; FOERSTE (113) p. 443.
- +*Lyriocrinus*:—*L. dactylus*, distrib.; GRABAU (135) p. 156. *L. me* FOERSTE (113) p. 443.
- +*Macrostylocrinus striatus* et var. *granulosus*; FOERSTE (113) p. 443.
- +*Mariocrinus*:—*M.* sp.; STEVENSON (291) p. 370. *M. carleyi*; FOERSTE (113) p. 443.
- +*Marsupites*:—*M. ornatus*, fig., distrib. in France; FRITEL (122) p. *M. testudinarius* [incl. *M. ornatus*]; ROWE (265) p. 72.
- +*Megistocrinus*:—*M. circulus* n. sp. (p. 72, pl. xxiv), *M. corniger* n (p. 71, pl. xxiv), *M. expansus* (p. 74, pl. xxiv), n. var. *inflatus* (p. pl. xxiv): Upper Devon., Charlestown, Ind.; ROWLEY in GR (142). *M. globosus*; SMITH (285). *M. unicornis* n. sp., Upper De Charlestown, Ind.; ROWLEY in GREENE (142) p. 73, pl. xxiv.
- +*Melocrinus*:—*Melanocrinus* [sic] *aequalis*; FOERSTE (113) p. 443. *laevis*; GRASSMUELLER (137) p. 15. *M. cf. minutus*; DREVERI (98) p. 180.
- Melacrinus rotundus*, caught by dabo-line in less than 100 fms.; I (160) p. 26.
- +*Müllerocrinus*:—*M. conicus*; WUNSTORF (331) p. 33. *M. covexus* [sic cf. *etalloni*, *M. escheri*, and *M. goldfussi*]; MAIRE (199) p. 267. *goupili*?; HUGI (155) p. 49. *M. nodotianus*? and *M. scalaris*; M (199) p. 267.
- +*Parisocrinus quinquangularis*; SMITH (285).

- +*Pentacrinus* (including *Balanocr.*, *Extracr.* [i.e. *Pentacr.* s. str.] and *Isocr.* [i.e. *Pentacr.* neontologorum] syn. *Cainocr.*):—*P.* sp.; ELBERT (103) p. 105. *P.* sp.; ROWE (266) p. 190. *P. agassizi*; CORNET (73) p. 253; ROWE (265) p. 72. *C. andreas*; BUXTORF (53) p. 50. *P. asteriscus*; DARTON (81): WEED (317) p. 478. *P. cf. astralis*; LEBEDEV (185) p. 111. *I. australis* (Moore, sub. *Pentacr.*) referred here, redescrib.; ETHERIDGE (105) p. 6, pls. i & iii. *P. baualtiformis*; BUXTORF (53) p. 29: CACCIAMALI (54) p. 91: NEWTON (222) p. 237, pl. ix. *P.* cf. *brauni*; DE STEFANI (84A) p. 19. *P. bronni*; LEBEDEV (185) pp. 263, 264. *P. caraboefi*; RASPAIL (253) p. 195. *P. cingulatus*; op. cit. p. 146: LEBEDEV (185) p. 255. *P. cotteau*; RASPAIL (253) p. 195. *P. crista-galli*; BUXTORF (53) pp. 48, 50. *P. diaboli*; OPPENHEIM (229) p. 227. *P. dubius*; GRASSMUELLER (137) pp. 41, 42. *P.* (?) *gastaldii*, columnals, distrib. discussed; VERRI & ANGELIS D'OSSAT (311) p. 16. *P. gracilentus*; RASPAIL (253) p. 195. *P. aff. jurensis*; BUXTORF (53) p. 31. *P. kiliani* n. sp. based on *P.* cf. *bajocensis*, de Loriol, Pal. franc. Crin. Jurass. pl. cli, ff. 5, 7, Bajocian, locc. ibi citt. & Longeville; PETITCLERC (240) p. 217, pls. vi, vii. *P. laevigatus*; TOMMASI (304): (?) columnals descr.; TOMMASI (303) p. 52. *P.* (*Extracr.*) *luevisutus* Pompeckj confirmed (pp. 771, 776 & fig. 191), *P.* [i.e. *Balanocr.*] *merzbacheri* n. sp., Callovian of Caucasus (p. 745 & fig. 182); AMMON (11). *B. moeschi*; BUXTORF (53) p. 48: distinguished from *B. pentagonalis*; PETITCLERC (240) p. 216. *P. moniliferus*; BUXTORF (53) p. 28. *P. neocomiensis*; LEBEDEV (185) p. 208. *P.* (*Balanocr.*?) *pentagonalis*; HUGI (155) p. 49. *P. psilonoti*; STRUEBIN (295). *P. scalaris*; DE STEFANI (84A) p. 29: LEBEDEV (185) p. 255. *P.* [i.e. *Balanocr.*] *subbasaltiformis*; STOLLEY (292). *B. subteres*; BRUN (47) p. 5. *P. tuberculatus*; BUXTORF (53) p. 27. *P. wuerttembergicus*; op. cit. p. 35: 'Pentacrinusplatten'; STRUEBIN (294) pp. 328, 332.
- +*Periechocrinus*:—*P. christyi*; FOERSTE (113) p. 443. *P. moniliformis*; MORGAN & REYNOLDS (209) p. 273.
- +*Phalocrinus*:—*P. barydactylus*, *P. basilicus*, *P. harli*, *P. lykinsi*, and *P. magnificus*; BEEDE & ROGERS (23) p. 244.
- +*Pisocrinus gemmiformis*; FOERSTE (113) pp. 399, 411.
- +*Platycrinus*:—*P.* cf. *arenosus*; PEACH (235) p. 223. *P. laevis*; SMITH (285). *P. trigintidactylus*; MORTON (215) p. 31, & (217) p. 48: PEACH (235) p. 223: SMITH (285): fig.; FRITEL (122).
- +*Poteriocrinus*:—*P.* sp. columnals; FLIEGEL (112) p. 96. *P. crassus*; MORTON (215) p. 31, (216) p. 33, & (218) p. 62: SMITH (285): THOMPSON (301) pp. 26, 30: et aff. *crassus*; PEACH (235) p. 223. *P. jesupi*, maintained; WHITFIELD & HOVEY (321) p. 369. *P. nuciformis* et aff. *nuciformis*; PEACH (235) p. 223. *P. unciformis* [sic ? err. pro *nuciformis*] M'Coy; MORTON (218) p. 62. *P. radiatus*, fig.; FRITEL (122). *P. opissus* [err. pro *spissus*]; SMITH (285). *P.* cf. *spissus*, et sp. indet., columnals; FICHEUR (110) p. 923. *P. tenuis* and *P.* aff. *ventricosus*; PEACH (235) p. 223.
- Rhizocrinus lofotensis*; JORDAN (166) p. 305, text-fig.
- +*Rhodocrinus*:—*R.* sp.?; THOMPSON (301) p. 26. *R. uniarticulatus*; SMITH (285). *R. verus*; GRASSMUELLER (137) p. 15: Goldf. non Miller; FLAMAND (111). *R.* cf. *verus*, columnals; FICHEUR (110) p. 922.
- +*Sagenocrinus*, incl. American species of '*Forbesiocr.*'; SPRINGER (290) p. 71.
- +*Scaphiocrinus*:—*S. conicus*; SMITH (285). *S.* ? *longitentaculatus* n. sp., Kaskaskia group, White R., Martin co., Ind., type in coll. Greene; ROWLEY in GREENE (141) p. 61, pl. xxi.
- +*Schizocrinus nodosus*; RUEDEMANN (268) pp. 534, 536.
- +*Sclerocrinus strambergensis*, deformed examples figd.; REMES (259) pl. i.

- †*Scyphocrinus*:—*S.* sp. in Kellerwald; DENCKMANN (92) p. 197. *S. eleg* BRESSON (44) p. 61; GRASSMUELLER (137) p. 15: in France; FR (122) p. 272.
- †*Scytalecrinus tenuis*; SMITH (285).
- †*Steganocrinus pentagonus* (Hall), the type resembles *S. araneolus*; W FIELD & HOVEY (321) p. 369.
- †*Stephanocrinus*:—*S. angulatus*, descr. and distrib.; GRABAU (135) p. & fig. *S. gemmiformis*; FOERSTE (113) p. 443: "probably at Niaga GRABAU (135) p. 155, & fig.
- †*Taxocrinus tuberculatus*?; GRASSMUELLER (137) p. 15.
- †"*Thallocrinus hercynicus* Jack. in litt."; BEUSHAUSEN (27) p. 127.
- †*Thylacocrinus vanniotti*, fig.; FRITEL (122).
- †*Thysanocrinus*:—*T. inornatus*; FOERSTE (113) p. 443. *T. liliif* "may occur at Niagara"; GRABAU (135) p. 156, & fig.
- †*Traumatocrinus* sp.; KRAFFT (175) p. 208.
- †*Triacrinus polyodonta* A. R.; BEUSHAUSEN (27) p. 127.
- †*Tribrachiocrinus corrugatus*; DUNSTAN (101) p. 11.
- Trochitae*, gen. et spp. indett.; BATHER in CHAPMAN (57) pp. 144, pl. iii.
- †*Uintacrinus*, systematic position discussed in detail, criticism of HATE nearest relations are to *Flexibilia*, esp. *Actinometra* (p. 52); SPRIN (290). *U.* sp. nondescr.; ROWE (265) p. 72. *U. socialis*, deta comparison of all variations with *U. westfalicus*, concluding that latter is a syn.; SPRINGER (290), and preliminary announcement (2
- †*Ulocrinus*:—*U.* sp. nondescr.; MORTON (218) p. 62. *U. globularis*; SM (285).
- †*Zeacrinus*:—*Z. maccoyanus*; SMITH (285). *Z. ? mucrospinus*; BEEDE (p. 76).

†G. CYSTIDEA*

(including EDRIOASTEROIDEA).

Short popular account; FRITEL (121).

Achradocystis, allied to *Comarocystis*: *A. grevingeki*; JAEKEL (162) p. 6 (p. 193); CLARKE (69). *A. alleganius*, v. *Lepidodiscus*. *A. bench* n. sp., Lower Carboniferous of Warren, Pa. (p. 195, and text-fig.), attached (p. 192), points of structure (pp. 183, 191); *A. billing* points of structure (pp. 189, 191); *A. blairi*, points of structu (p. 188); *A. bohemicus*, points of structure (p. 189); *A. buttsi* n. s. Lower Carboniferous, Warren, Pa., and Mt. Moriah in Cattaraugus c. N. Y. (p. 196, pl. x), points of structure (pp. 183, 189) [terms 'sol' and 'contrasolar' transposed in description] (see II, v, vii, g); CLAR (69). *A. cincinnatiensis*, fig.; FRITEL (121): not a *Lepidodisc* (p. 185), points of structure (pp. 189, 190, 191); *A. dicksoni*, points structure, and figure (pp. 189, 190, 191); *A. hamiltonensis*, points structure and new figure (pp. 188, 189, 190, 191 [see II, v, vii, g] pl. 2. *A. holbrooki*, figure of anal region, showing interambulacrals, marginals, and accessory covering plates (p. 189), points of structu (pp. 190, 191); CLARKE (69). *A. kaskaskiensis*, v. *Discocystis lebouri* (p. 191), *A. legrandensis* (pp. 189, 190), *A. pileus* (p. 190) points of structure; CLARKE (69). *A. rhenanus* is from Siegen Grauwacke, i.e. lowest Devonian; FRECH (120) p. 318. *A. septen*

† All extinct.

* Names that are sometimes given the termination -ites (e.g. *Amygdalocystis*) are here treated as always ending in -us, -a, or -is, as the case may be.

- brachiatus*, points of structure; CLARKE (69) p. 190. *A. squamosus*, v. *Lepidodiscus*.
- Ageladiscus*, syn. of *Discocystis* q.v.
- Amygdalocystidae* n. fam. (v. sub *Carpoidea*); JAEKEL (162) p. 675.
- Amygdalocystis* defined; *A. florealis*, position of anus in Bather's drawing of Hinde's specimen criticised as an incorrect "Reconstruction," on the evidence of "2 Steinkerne" of undetermined species; *A. huntingtoni*; *A. tenuistriatus*: op. cit. p. 676.
- Anomalocystidae* redefined, incl. *Enoploura*, *Placocystis*; op. cit. p. 668: fragments described as "*Turrilepas*?? *ketleyanus*, Salter," but suggested that it may be column of an *Anomalocystid*; REED (257) p. 109.
- Anomalocystis* defined; JAEKEL (162) p. 668. *A. bohemicus*, v. *Enoploura*. *A. cornutus*, *A. disparilis* (p. 668); *A. ensifer* apparently belongs to *Ceratocystidae* (p. 667); *A. pyramidalis*, may eventually prove type of a new genus of *Ceratocystidae* (p. 667): JAEKEL (162).
- Aristocystis bohemicus*; ŽELÍZKO (335) p. 230.
- Ateleocystis huxleyi*, referred to *Mitrocystidae*; JAEKEL (162) p. 672.
- Balanocystis lagenula*, apparently belongs to *Ceratocystidae*; op. cit. p. 667.
- Brachiata* n. subord. of *Eustelea* (v. sub *Carpoidea*); op. cit. p. 676.
- Callocystis jewetti*; GRABAU (135) p. 151, & fig.
- Canadocystis* n. g. of *Amygdalocystidae*, with genotype *C. barrandei* (Bill. as *Malocystis*); JAEKEL (162) p. 675 & fig.
- Carpoidea* n. class. incl. Ord. A. *Heterostealea*, Subord. a. *Cornuta*, Famm. *Ceratocystidae*, *Anomalocystidae*, Subord. b. *Marginata*, Famm. *Trochocystidae*, *Mitrocystidae*, Subord. c. *Soluta*, Famm. *Rhipidocystidae*, *Dendrocystidae*. Ord. B. *Eustelea*, Subord. a. *Varicata*, Famm. *Malocystidae*, *Amygdalocystidae*, Subord. b. *Brachiata*, Fam. *Comarocystidae*; JAEKEL (162).
- Caryocrinus ornatus*, distrib.; GRABAU (135) p. 150, & fig.
- Ceratocystidae* n. fam. (v. sub *Carpoidea*), incl. *Ceratocystis*, *Balanocystis*, and spp. referred by Barrande to *Anomalocystis*; JAEKEL (162) p. 666.
- Ceratocystis* n. g., with genotype *C. perneri* n. sp. Mid. Cambrian, Tejrovic, Bohemia; op. cit. p. 667 & fig.
- Comarocystidae* defined; op. cit. p. 676.
- Comarocystis* defined: *C. punctatus*: *C. shumardi* & var. *obconicus*, validity doubted; loc. cit.
- Cornuta* n. subord. of *Heterostealea*, v. sub *Carpoidea*; JAEKEL (162) p. 666.
- Craterina bohemia*; ŽELÍZKO (335) pp. 228, 230.
- Cryptocrinus*, placed in *Carpoidea* (q.v.) but is perhaps a Pentacrinoid reverted to Cladocrinoid type; JAEKEL (162) p. 677.
- Cystidea abscondita*, v. *Enoploura*.
- Dendrocystidae*, defined (v. sub *Carpoidea*); JAEKEL (162) p. 672.
- Dendrocystis*, defined, *D. rossicus* n. sp., Brandschiefer in Ordovician of Esthland (no fig.), *D. sedgwicki*, stem figd.; op. cit. p. 673.
- Discocystis*, discussed (pp. 185-187), defined (p. 193); *D. kaskaskiensis*, redescr., figd. (p. 185), points of structure (pp. 190, 191), not attached (p. 192); *D. optatus*, points of structure (pp. 185, 191); *D. sampsoni*, points of structure (pp. 186, 191), not attached (p. 192): CLARKE (69).
- Echinodiscus* Worth. & Mill., *E. optatus*, *E. sampsoni*, v. *Discocystis*.
- Echinoencrinus angulosus*; LAMANSKY (178) p. 250. *E. senkenbergi* [sic], fig.; FRITEL (121). *E. striatus*; LAMANSKY (178) p. 252.
- Echinospaera aurantium*; BJØRLYKKE (29) p. 27, & text-fig.: fig.; FRITEL (121). *E. granulata*, Graptolitic mud-stones, Upper Llandello, Trochrague Burn near Girvan; PEACH et al. (236) p. 431. *E. kingi*; DATTA (82) pp. 107, 117: LA TOUCHE (183) p. 33, & (184) pp. 82, 90.
- Enoploura*, defined, and to it are referred *Anomalocystis bohemicus* & *Cystidea abscondita* BARR.; JAEKEL (162) p. 668.

- Eustelea*, n. ord. of *Carpoidea* (q.v.); op. cit. p. 673.
Glyptosphaera leuchtenbergi, fig.; FRITEL (121).
Haplocystis rhenana discussed; CLARKE (69) pp. 186, 191. Vide *sub Agelacrinus*.
Heterostelea n. ord. of *Carpoidea* (q.v.); JAEKEL (162) p. 666.
Lepidodiscus, discussed (p. 184), defined (p. 193); *L. alleganius* n. Chemung sandstone of New York and Pennsylvania (p. 194, pl. x) attached (p. 192), points of structure (pp. 187, 188, 189, 191) (see vii, g) [term 'contrasolar' in description should be 'solar']; CL (69). *L. cincinnatiensis* v. *Agelacr.* *L. squamosus*, genotype (p. points of structure (pp. 188, 190, 191), not attached (p. 192); CL (69).
Lepadocrinus gebhardi; STEVENSON (291) p. 370. *L. quadrifasci* fig.; FRITEL (121).
Malocystidae restricted to *Malocystis* sens. restr., *M. murchisoni* f JAEKEL (162) p. 674.
Marginata n. subord. of *Heterostelea*, v. sub. *Carpoidea*; op. cit. p. 6
Mesites [i.e. *Mesocystis*] *puseyeffskii*; LAMANSKY (178) pp. 248, 268.
Mimocystis cf. *bohemicus*; LA TOUCHE (183) p. 34, & (184) pp. 83, 91,
Mitrocystella n. g. with genotype *M. incipiens* (Barr. sub *Anomalocystis* also *M. barrandei* n. sp., Ordovician (D 1 γ), Wosek near Rokitz Bohemia, fig. 8; JAEKEL (162) p. 672.
Mitrocystidae n. fam. (v. sub *Carpoidea*), incl. *Mitrocystis*, *Mitrocyst* & ?*Ateleocystis*; op. cit. p. 669.
Mitrocystis, defined (p. 671); *M. lata* n. sp., Ordovician (D 1 γ), W. near Rokitzan, Bohemia (p. 671, no fig.); *M. mitra*, restricted (p. & fig.): JAEKEL (162).
Placocystis, defined, incl. *Ateleocystis* Haeckel (p. 668); *P. forbesia* figd. (p. 669); JAEKEL (162).
Pleurocystis sp. nondescr., Drummuck Mud-stones, Upper Cambrian Threave near Girvan; PEACH et al. (236) p. 431. *P. squamosus*, FRITEL (121).
Rhipidocystidus n. fam. (v. sub *Carpoidea*), incl. only *Rhipidocystis* with genotype *R. gigas* n. sp., Vaginatenkalk near St. Petersburg JAEKEL (162) pp. 672, 665, fig.
Soluta n. subord. of *Heterostelea* (v. sub *Carpoidea*); op. cit. JAE (162).
Stribalocystis gorbyi; FOERSTE (113) p. 443.
Stromatocystis not comparable with *Medusites lindströmi* as Jaekel proposes; FRECH (120) p. 318.
Taracrinus tetraëdra n. sp., Mid. Devon. of Kellerwald; JAEKEL in I (194).
Trochocystidae, n. fam. (v. sub *Carpoidea*), contains only *Trochocystis* defined (incl. *Trigonocystis*), *T. bohemicus* (fig.), *T. occidentalis* n. Cambrian of France and Spain (no fig.); JAEKEL (162) p. 669.
Trochocystis? sp. plates; POMPECKJ (245) pp. 1, 9. *T. barrandei* n. Chalm. & J. Berg.; BERGERON (26) pp. 626, 631, 682.
Varicata n. subord. of *Eustelea* (v. sub *Carpoidea*); JAEKEL (162) p.

†H. BLASTOIDEA.

- General systematic account for museum purposes; BATHER (16). See popular account, included under *Cyst.*; FRITEL (121).
Allagecrinus austini; SMITH (285).
Astrocrinus, vide *Zygocrinus*.

Carpenteroblastus n. g. with genotype *C. magnibasis* (Rowley, as *Granatocr.*) figd.; *C. pentagonus* (also *pentulobus*) n. sp., Lower Burlington Limest., Louisiana, Mo., figd.; *C. piriformis*; *C. stella* (Rowley as *Granatocr.*) figd.: ROWLEY (267) p. 347.

Codonaster acutus, fig.; FRITEL (121).

Granatocrinus magnibasis & *G. piriformis*, v. *Carpenteroblastus*. *G. sampsoni* syn. of *Pentremites* [*Orbitremites*] *roemeri*; ROWLEY (267) p. 343. *G. stella*, v. *Carpenteroblastus*.

Lophoblastus n. g. with genotype *Codonites inopinatus* Rowley & Hare (p. 344); *L. aplatus* (Rowl. & Hare) (p. 346, pl.); *L. conoideus* n. sp., Upper Chouteau beds, Curryville, Mo. (p. 345, pl.); *L. inopinatus*, spiracles discovered (p. 346, pl.); *L. marginulus* n. sp., Lower Burlington Limest., Louisiana, Mo. (p. 345, pl.); *L. ? neglectus* (pp. 343, 346); *L. roemeri* (Shum. as *Pentremites*) (p. 346, pl.): ROWLEY (267).

Nucleocrinus lucina; CLARKE (68) p. 133.

Orbitremites magnibasis & *O. stella*, v. *Carpenteroblastus*.

Pentremites altus n. sp., Kaskaskia group, Newmans Ridge, E. Tennessee, also fr. Kentucky, type in coll. Greene; ROWLEY in GREENE (142) p. 64, pl. xxiii. *P. neglectus*, v. *Lophoblastus*. *P. piriformis*, fig.; FRITEL (121). *P. roemeri*, v. *Lophoblastus*. *P. sulcatus*, fig.; FRITEL (121).

Pentremiteidea eifelensis, fig. sub *Pentremites*; FRITEL (121).

Schizoblastus sayi with "proboscis" [anal tube]; ROWLEY (267) p. 348 & pl.

Zygocrinus, incl. *Astrocrinus*:—*A.* [i.e. *Z.*] *benniei*; PEACH (235) p. 223.

K. INCERTAE SEDIS.

Pentagonal imprints in Triassic sandstone of Elgin and Warwickshire; BURCKHARDT (51): are subjective appearances and therefore not Echinodermal; BATHER (17): their existence maintained, but they may be impressions of Medusae or of something else; BURCKHARDT (52): original criticism maintained; BATHER (19).

†*Ascocrinus barrandei* Tromelin MS.; BIGOT (28) p. 153: FRITEL (122) p. 272.

†*Aspidocrinus scutelliformis*; STEVENSON (291) p. 372.



XV. VERMES.

BY

ALICE L. EMBLETON, B.Sc.

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INTRODUCTION.

PROBABLY the most important work of the year is the treatise BENHAM (25), published under the editorship of Professor Ray Lankester dealing with the phyla *Platyhelminia*, and *Nemertina*, which are considered as quite distinct. The *Mesozoa* are left in a somewhat doubtful position as appendices to the *Platyhelminia*. In SHIPLEY & MACBRIDE'S (3) elementary text-book, *Platyhelminthes*, *Nemertinea*, *Rotifera* and *Nemata* are treated as separate phyla.

Another important work is EHLE's (109) memoir on Patagonian-Chilian forms.

Some of the most pressing questions as to the principles of nomenclature are discussed by STILES (352) and exemplified by cases occurring amongst parasitic worms.

Contributions on the subject of *Filaria* and filariasis are numerous. Among the most important of them is the report by ANNETT, DUTTON & ELLIOTT (2) arising from the Liverpool expedition to Nigeria to investigate malaria.

SPENGLER (343) has revised the taxonomy and nomenclature of *Helminthochordata*. COHN gives a comprehensive systematic and anatomical work (80) on Avian Cestodes. The important work on excretion in Annelids by WILLEM & MINNÉ (396) though dated 1900 probably only appeared in 1901.

MEYER (239) has produced an admirable memoir on the mesodermic Annelids, in which he deals exhaustively with the structure and development of the various organs. IKEDA (166) has an excellent contribution to the development, structure and metamorphosis of *Phoronis* larva.

The considerable work by HALKIN (156) on the maturation, fertilization, segmentation and organogenesis of *Polystomum integerrimum* adds to our knowledge of *Trematodes*. BRUMPT (59, 60) considers the question of hermaphroditic fertilisation in *Hirudinea*, which he considers a secondary and a primitive condition. LOEB (206) has proved that artificial parthenogenesis can be caused in *Chaetopterus*. The unfertilized eggs develop into swimming ciliated larvae (trochophores) when treated with sea-water. From this he infers that the spermatozoon carries into the egg a catalytic substance which accelerates the development. A set of excellent photographs illustrates the paper by FOOT & STROBELL (116) on the yolk-nucleus and polar rings in the egg of *Allolobophora fetida*. Attention may also be called to a very exhaustive paper by SCHOCKEART (328) on the oögenesis of a Turbellarian. RHUMBLER (311) has contributed a valuable paper on the behaviour of the nucleus in the blastomeres of certain *Nematodes*, and GÉRARD (132) a treatise on the maturation of the egg in Polyclada.

BRAUN'S (51) paper on the Trematodes of the *Chelonia* contains descriptions of numerous species, two of them new, as well as much useful synonymy.

BARDEEN (14) contributes much valuable knowledge on the subject of regeneration in Planarians, and RABES (303) an extensive paper on grafting and regeneration experiments in *Lumbricidae*. The memoir by RABES (306) on the histology of the regenerating nervous system of *Lumbricus* and the centrosome of its nerve cells is a thorough piece of work. A considerable addition to the knowledge of the muscular system of *Aligata* has been made by BOCK (34).

FRIEDLÄNDER (119 & 120) has an interesting discussion on general questions connected with the discovery of a Palolo worm in the Atlantic.

A work on the supra-littoral fauna of the west of France by FERNIER (114) giving localities and biology of the spp., and discussing the effects of salt and fresh water and other agencies, such as dessiccation

and light, deserves attention. JENNINGS (172) has published a list, with critical notes, of all the species of Rotifera recorded in the United States.

A few titles from Tagebl. Internat. Congr. Zoologie are included though at present little or nothing more than the titles has appeared. The complete papers will probably be found in the Volume of the Proceedings of the Congress, published in the autumn of 1902.

I. TITLES.*

1. ALLEN, E. J. & TODD, R. A. The fauna of the Exe Estuary. J. Mar. Biol. Ass. vi. [Vermes, pp. 318-322, *Gephyrea*, *Turbellaria*, *Polychæta*.]
Summary, J. R. Micr. Soc. 1901, i, p. 28, and 1902, ii, p. 174.
2. ANNETT, H. E., DUTTON, J. E., ELLIOTT, J. H. Report of the Liverpool expedition to Nigeria. Part II. Filariasis. Thompson Yates Lab. Rep. iv, pp. 1-93 +xiv, 14 pls.
Monograph of *Filaria* in birds with n. spp. Important bibliography.
3. APÁTHY, ST. V. Die drei verschiedenen Formen von Lichtzellen bei Hirudineen. Mit Demonstration von Neurofibrillenpräparaten nach der Hämäteïn- und Nachvergoldungsmethode. Tagbl. Internat. Zool. Congr. viii, p. 15.
ARKIN, L. [See PARKER & ARKIN (279).]
4. ARIOLA, V. Nota sui Cestodi parassiti del *Centrolophus pompilius* Linn. Atti Soc. Ligustica xi, pp. 215-220.
[—]. Discussion of paper (7), Zool. Rec. 1900.] Monit. Zool. ital. xii, p. 14 supplement.
5. *ARNOLD, A. F. The sea beach at ebb-tide, a guide to the study of the sea-weeds and the lower forms of animal life found between tide marks. New York, Century Company x, 490 pp., 600 figg.
Review, Amer. Natural. xxxv, p. 937.
6. ASHWORTH, J. H. The anatomy of *Scalibregma inflatum* Rathke. Quart. J. Micr. Sci. xlv, pp. 237-309, pls. xiii-xv.
Includes history, habits, distribution, and affinities.
7. *AUDAIN, L. Contribution au chapitre d'étiologie de la filariose. À propos de la communication de M. le Dr Blanchard. La Lanterne Médicale, Port-au-Prince iii, No. 4, pp. 43-46.
Summary, Arch. parasit. iv, p. 167.
8. *—. Clinique sur un nouveau cas de filariose génitale. La Lanterne Médicale, Port-au-Prince iii, No. 4, pp. 29-34, 1900.
Summary, Arch. parasit. iv, p. 167.
9. *AUDISIO, E. Insetti e vermi. Il Coltivatore (5) xlv, No. 46, pp. 628-630, Casale, 1899.
Cf. Monit. Zool. ital. xi, 1901, p. 360.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

10. BAILY, W. A. *Rhynchelmis*: a rare aquatic worm. P. Cotteswold Club xiii, iv, pp. 309-317, pl. xvii.
11. BARBAGALLO, P. Ricerche sperimentali sulla durata della vitalità degli endoparassiti animali racchiusi entro gli organi dopo la morte dei loro ospiti. Arch. parasit. iv, pp. 531-549.
12. *——. Sull' ossiurias cutanea. Gazz. Ospedali. Milano, No. 3, 12 pp. 1900.
Cf. Arch. parasit. iv, p. 330.
13. *——. Sull' ossiurias cutanea, nota clinica. Rass. intern. med. moderna i, 1900, Catane, 12 pp.
Cf. Arch. parasit. iv, p. 168.
14. BARDEEN, C. R. On the physiology of the *Planaria maculata*, with especial reference to the phenomenon of regeneration. Amer. J. Physiol. v, pp. 1-55, 33 figg.
15. ———. The function of the brain in *Planaria maculata*. T. c. pp. 175-179, 1 fig.
16. *——. Essential factors in the regeneration of *Planaria maculata*. [Amer. Morph. Soc., Dec. 1900].
Summary in Biol. Bull. ii, p. 351.
17. BATAILLON, E. La pression osmotique et les grands problèmes de la Biologie. Arch. Entwicklmech. xi, pp. 149-184, pl. v. [Resistance to pressure and to dehydration of eggs of *Ascaris megalocephala*.]
Summary by BERGH, Zool. Centrbl. viii, pp. 217-219.
18. BEDDARD, F. E. Preliminary note on the spermatophores of certain Earthworms. Zool. Anz. xxiv, pp. 220-223.
19. ———. On a freshwater Annelid of the genus *Bothrioneuron* obtained during the "Skeat Expedition" to the Malay Peninsula. P. Zool. Soc. London 1901, i, pp. 81-87, 3 text-figg.
20. ———. Contributions to the knowledge of the structure and systematic arrangement of Earthworms. T. c. pp. 187-206, 9 text-figg. 1. On *Polytoreutes gregorianus* (reproductive organs etc.). 2. The genus *Typhaeus*.
21. ———. On the clitellum and spermatophores of an Annelid of the genus *Atrua*. T. c. pp. 215-222, 5 text-figg.
22. ———. On some Earthworms from British East Africa; and on the spermatophores of *Polytoreutes* and *Stuhlmannia*. T. c. pp. 336-365, 6 text-figg.
Includes a contribution to our knowledge of the genus *Gordiodrilus*.
23. ———. Note upon a new form of spermatophore in an Earthworm [*Stuhlmannia*]. Nature lxiii, p. 515.
BELL, F. J. [See SMITH, BELL & KIRKPATRICK (338).]
24. BENHAM, W. B. The coelomic fluid in *Acanthodrilids*. Quart. J. Micr. Sci. xlv, pp. 565-590, pl. xli.
25. ———. A treatise on Zoology. Edited by E. Ray Lankester. Part iv. The Platyhelminia, Mesozoa, and Nemertini. London, 8vo, 1901, vi+204 pp. Illustrations. Includes addenda and corrigenda to the Nemertini by Mr R. C. Punnett, pp. 194, 195.
Brief summary, J. R. Micr. Soc. 1902, p. 186.—Review by R. F. S., pointing out some omissions, Irish Natural. x, p. 232.

26. [BENHAM, W. B.] An account of *Acanthodrilus uliginosus* Hutton. Tr. N. Zealand Inst. xxxiii, pp. 122-129, pl. v.
27. —. On some earthworms from the islands around New Zealand. Tr. N. Zealand Inst. xxxiii, pp. 129-144, pls. ii-iv [n. spp.].
28. BERGENDAL, D. Studier öfver Nemertiner. 1. *Callinera birgeri* Bergendal, en representant för ett afrikande släkte bland Paläone-mertinerna. Acta Univ. Lund. 1900, xxxvi, Afdeln. ii, No. 5, 47 + vii pp., 2 pls.
In Swedish, with detailed explanation of the illustrations in German.
29. —. Demonstration von *Callinera* und *Polypostia*. Tagebl. Internat. Zool. Congr. viii, pp. 16 & 17.
30. BERGH, R. S. Kleinere histologische Mittheilungen. Zeitschr. wiss. Zool. lxi, pp. 444-456, pls. xxxii & xxxiii.
1. Zur Histologie der Larve von *Aulastoma*, pp. 444-451.
2. Darstellung der Terggrenzen in den Segmentalorganen der Lumbriciden, pp. 451-453. Nachtrag, pp. 453-455 relates to SUKAT-SCHOFF's (307) paper of last year.
Summary by BERGH, Zool. Centrbl. viii, p. 282.
31. —. Beiträge zur vergleichenden Histologie. II. Über den Bau der Gefässe bei den Anneliden. II. Mt. Anat. Hefte. Arb. xv, pp. 597-623, 4 pls.
Summary by BERGH, Zool. Centrbl. vii, pp. 884-886.
32. BLANCHARD, R. Les moustiques de Paris leurs méfaits, mesures de préservation. Arch. parasit. iv, pp. 615-635.
33. —. Note sur les Ténias noirs. Arch. parasit. iv, pp. 227-232.
34. BOCK, M. DE. Observations anatomiques et histologiques sur les Oligochètes, spécialement sur leur système musculaire. Rev. Suisse Zool. ix, pp. 1-41, pls. i & ii.
35. *BÖHM, J. Fütterungsversuche mit amerikanischem, trichinösem Schweinefleisch. Zeit. Fleisch. Milchhygiene, 1899-1900, Heft 3.
Summary, Centrbl. Bakter. xxxi, p. 86.
36. BOHN, G. Les intoxications marines et la vie fousseuse. C.R. Ac. Sci. cxxxiii, p. 593.
Brief summary, J. R. Micr. Soc. 1902, i, p. 48.
37. —. L'histolyse saisonnière. T. c. pp. 646-648.
38. BOLSIUS, H. Contribution à l'étude de la fécondation de l'*Hæmenteria costata*. Zool. Anz. xxiv, pp. 195-198, 2 figg.
39. —. Comment le contenu du spermatophore arrive-t-il dans la cavité coelomique chez l'*Hæmenteria costata*? [Communication préliminaire.] Zool. Anz. xxiv, pp. 206-209, 2 figg.
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- Wartelia gonotheca*, structure and affinities, maturity ?, at St. Andrews, NORDENSKIÖLD, Ofv. Finska Forh. xliii, p. 222-232, pl.

OLIGOCHÆTA.

[The following memoirs relate to *Oligochaeta*, viz. :—BAILY (10), BEDDARD (18-23), BENHAM (24, 26, 27), BERGH (30), BOCK (34), BRACE (45), BRETSCHER (56, 57), COGNETTI (77-79), DADAY (90), DARWIN (95), FOOT (116), FRIEND (121), HENRY (161), ISSEL (168), KRAEPELIN (192), MEYER (239), MICHAELSEN (241), PARKER & ARKIN (279), PIERANTONI (291), RABES (303, 304), RAND (306), REA (309), RETZIUS (310), RIBAUCCOURT (312), ROSA (314), STRAUB (345), UDE (367), VISART (377), WILCOX (396), WILLEM & MINNÉ (396).]

GENERAL BIOLOGY.

Anatomy and histology, especially of the muscular system, BOCK (34).

Anatomy of *Acanthodrilus uliginosus*, BENHAM (26); General Anatomy of *Bothrioneuron iris*, n. sp., BEDDARD (19).

Morphological significance of the cerebral ganglion of *Lumbricus agricola*, MEYER (239); Anatomy, chiefly of reproductive organs of *Polytoreutus*, *Stuhlmannia* and *Gordiodrilus*, BEDDARD (22); Nervous system and sense organs of *Æolosoma tenebrarum*, BRACE (45).

Yellow cells in the intestine of *Lumbricus*, WILLEM & MINNÉ (396).

Cell limits in the segmental organs of the *Lumbricidae*, BERGH (30).

Cœlomic fluid, cellular elements, action of reagents, BENHAM (24).

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Polytoreutes gregorianus, and of *Typhæus nicholsoni*, n. sp., *T. incensus* n. sp., BEDDARD (20).

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Egg of *Allolobophora fatida*, yolk-nucleus, polar rings, FOOT & SIM (116).

Physiology, excretion of *Lumbricus*, WILLEM & MINNÉ (396); Excretion (nephrocytes) in *Lumbricidae*, RIBAUCOURT (312).

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Regeneration, transplantation and longevity experiments on *Lumbricus*, RABES (304); Regeneration and grafting in *Lumbricidae*, RABES (304).

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DISTRIBUTION.

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Gloucestershire, rare well-worm, BAILY (10); Britain, Essex, well-worm found for first time in England, FRIEND (121).

Hamburg, KRAEPELIN (192); Hamburg, River Elbe, 3 n. spp. *Tubificoides* MICHAELSEN (241).

Switzerland, n. genera and n. spp., BRETSCHER (56).

Torino, n. sp., VISART (377); Spezia, n. sp. of *Lumbricidae*, COGNETTI (77); Caldano and Vinadio, *Aelosoma* in hot baths, ISSEL (168); Gai

Naples, n. sp., PIERANTONI (291); Sardinia, n. spp., COGNETTI (79); Eg *Alma nilotica*, REA (309).

Africa, n. spp., BEDDARD (22).

India, n. spp., BEDDARD (20).

Malay Peninsula, n. sp., BEDDARD (19).

Malay Archipelago, n. sp., ROSA (314).

New England, parasitic or commensal sp. allied to *Chatogaster lineatus* found in *Physa heterostrophus*, WILLCOX (395).

Chili and Argentine Republic, 7 spp., COGNETTI (79).

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SYSTEMATIC.

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- Æolosoma tenebrarum*, nervous system and sense organs, BRACE, J. Morphol. xvii, pp. 177-184, pl. xxi; *A. quaternarium*, in hot baths at Caldano and Vinadio, biology and structure, ISSEL, Boll. Mus. Genova, No. 106, pp. 3-8, pl. i, fig. 3.
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- O. hemiandrum*, Spezia, structure, particularly the reproductive organs, COGNETTI, Boll. Mus. Torino xvi, No. 383, n. spp.
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HIRUDINEA.

[The following memoirs relate to *Hirudinea*, viz.:—BERGH (30), BOLS (38, 39), BRUMPT (58-60), CASTLE (63), DENDY (96), GADEAU DE KERVÉ (126), KOWALEVSKY (191), KRAEPELIN (192), MACLAREN (220), MATTHEWS (230), MONTICELLI (250), MOORE (252), RETZIUS (310), SUKATSCHOFF (311), WILLEM & MINNÉ (396).]

GENERAL BIOLOGY.

- Metamerism of the leech, CASTLE (63).
 Anatomy, internal of *Glossiphonia novae-zealandiae*, DENDY (96).
 Histology of *Aulastoma* larva, also cell limits in segmental organs, BERGH (30).
 Excretory system in *Nephelis* and *Clepsine*, WILLEM & MINNÉ (396).
 Blood vascular system of *Malacobdella grossa*, MACLAREN (220).
 Chemical nature of the cocoon of *Hirudo*, SUKATSCHOFF (360).
 Reproduction of *Hirudinea*, BRUMPT (60); copulatory organs in *Ichthyobdellidae*, BRUMPT (59); Fertilization of *Hæmenteria costata*, BOLSIUS (38); of *Helobdella algira*, KOWALEVSKY (191); BOLSIUS (39).
 Parasites, *Pisces*, MOORE (252); Parasites from *Mya truncata*, Clyde, MACLAREN (220).

DISTRIBUTION.

- Normandy, 2 marine spp., GADEAU DE KERVILLE (126).
 Gulf of Naples, n. sp. *Epibdella* in *Trygon violacea*, MONTICELLI (250).
 Spain, occurrence of *Hirudo troctina*, MATEOS (230).
 Illinois, 3 n. spp., 1 n. g., MOORE (252).
 New Zealand, fresh-water n. sp., DENDY (96).

SYSTEMATIC.

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Epibdella diadema, Gulf of Naples, MONTICELLI, Boll. Soc. Napoli xv, n. sp.
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Glossiphonia complanata, p. 493, *stagnalis*, p. 497, diagnoses, *lineata*, structure and synonymy, p. 493, pl. xlii, fig. 6, MOORE, t. c.
G. (Clepsine) novae-zealandiae, New Zealand, in fresh-water, structure, DENDY, Tr. N. Zealand Inst. xxxiii, pp. 99-103, n. sp.
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Hæmopsis marmoratis, p. 519, pl. xlv, figg. 24 & 26, pl. xlvii, figg. 33 & 34, *H. lateralis*, diagnoses, structure, p. 528, pl. xlv, figg. 25 & 27, pl. xlvii, figg. 30 & 31, MOORE, Bull. Illinois Lab. v.
Helobdella algira, fertilization, KOWALEWSKY, Mem. Soc. zool. France xiii, pp. 66-88, pls. iii-v.
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PLATHELMINTHES.

[The following memoirs relate to *Platyhelminthes*, viz.:—BENHAM KRAEPELIN (192), MINGAZZINI (243), NINNI (263).]

General work on *Platyhelminia* and *Nemertini*, the two being treated separate phyla; specially deals with comparative anatomy, taxonomy, embryology, and phylogeny, BENHAM (25).

Venice, List of Trematodes, Cestodes, vertebrate hosts and localities, NINNI (263).

Poison of internal forms, MINGAZZINI (243).

NEMERTINA.

[The following memoirs relate to *Nemertina*, viz.:—BERGENDAL, COE (75, 76), ISLER (167), KOROTNEFF (189), M'INTOSH (245), PUNNETT (300-302), STAUB (345), THOMPSON (362), WHITEAVES (394), WILSON (362), ZYKOFF (411).]

GENERAL BIOLOGY.

Anatomy, histology and development of *Lineus*, PUNNETT (301).

Development of *Cerebratulus*, COE (76).

Fission and regeneration of *Cerebratulus*, WILSON (399).

Anatomy, histology and parasites of *Zygenpolia litoralis*, n. sp., THOMPSON (362).

Anatomy and histology of *Callinera bürgeri*, BERGENDAL (28).

Anatomy and histology, new forms, STAUB (345).

DISTRIBUTION.

Britain, Plymouth, 2 n. spp. forming 2 n. genera, PUNNETT (302).

Russia, Saratov, ZYKOFF (411).

Lake Baikal, KOROTNEFF (189).

Amboina, n. spp., STAUB (345).

Maldiv and Laccadive Archipelagoes, n. spp., PUNNETT (300).

Alaska, 3 n. spp., 27 n. spp., COE (75).

Chili, Juan Fernandez, 20 spp. redescribed, with localities, ISLER (167).

SYSTEMATIC.

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- A. angulatus*, p. 41, pl. vi, fig. 4, pl. vii, figg. 2 & 2a, pl. xi, fig. 2, pl. xiii, fig. 3, *A. bimaculatus*, p. 44, pl. i, fig. 4, pl. v, fig. 10, pl. viii, fig. 2, pl. xii, fig. 2, color, structure, COE, P. Washington Ac. iii.
- A. tigrinus*, p. 46, pl. iv, figg. 5–8, pl. viii, fig. 4, pl. x, figg. 3 & 4, *A. nebulosus*, p. 48, pl. iv, fig. 1, pl. viii, fig. 6, pl. xi, fig. 1, *A. leuciodus*, p. 51, pl. vii, fig. 6, *A. exilis*, p. 54, pl. iii, fig. 1, pl. vii, fig. 5, pl. xi, fig. 3, Alaska, color, structure, COE, t. c., n. spp.
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- Carinoma*, defined, COE, t. c., p. 20.
- C. griffini*, Alaska, structure, COE, t. c., pp. 20–23, 2 figg., n. sp.
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- C. aliena*, Maldive Is., p. 102, pl. iv, figg. 15 & 16, structure, PUNNETT, Gardiner's Fauna Geogr. Maldive and Laccadive Archipelagoes i, 1, n. sp.
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- Drepanophorus roseus*, n. sp., p. 112, *D. cerinus* (Bürger), p. 113, pl. iv, figg. 7, 10 & 11, Maldive Is., structure, diagnosis of genus, p. 115, PUNNETT, t. c.
- Emplectonema*, defined, COE, p. 23, *E. gracile*, structure, COE, pp. 23–25, pl. viii, fig. 3, P. Washington Ac. iii.
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- Eunemertes*; 3 spp. from Chili, characters, ISLER, Fauna Chilens ii, 2, p. 274.
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TURBELLARIA.

[The following memoirs relate to *Turbellaria*, viz:—BARDEEN (14), BORELLI (41), CHILD (71), CURTIS (87), DADAY (90), DENDY (97), FURBER (124), GÉRARD (132), GRAFF (144), HALLEZ (157, 158), KOROTNEFF (158), LEBEDINSKI (196), LILLIE (199), M'INTOSH (245), MONTI (248), MORGAN (253, 254A), PARKER & BURNETT (280), SCHARFF (325), SCHOCKAERT (328), SCHULTZ (329), SEKERA (331), STEEL (346, 347), STEVENS (349), VIRÉ (370), VOLZ (379), WENIG (389A), WHITEAVES (394), WOLZ (403).]

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- erulans*, Chatham Island and New Zealand, p. 233, *G. garreyi*, Zealand, p. 234, *G. aucklandica*, Auckland, p. 235, *G. howesi*, Zealand, p. 238, *G. cooperi*, Auckland, p. 239, BENHAM, T. Zealand Inst. xxxiii : n. spp.
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- Anatomy and systematic position of *Paronia carrinoi*, DIAMARE (101).
- Suppression of the longitudinal nerve of *Abothrium rectangul* MRÁZEK (256).
- Development of Cestodes, SAINT-REMY (322).
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- Mechanical and chemical action of Cestodes and effects on hosts, VAULLEGARD (371).
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- D. minuta*, from *Tringa totanus*, Germany, COHN, p. 414, pl. viii, f. 1; Acta Ac. German. lxxix; *D. lutsi*, Brazil, in *Picus* sp., characters, PARONA, Atti Soc. Ligustica xii, p. 10, and Boll. Mus. Genov. No. 102, p. 8; *D. mutabilis*, from the hen, RÜTHER, Deutsches tierärztliche Wochenschr. ix, 1901, Nos. 35 & 36, pp. 353-364; n. sp.
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- Drepanidotenia* subgen., anatomy, composition and affinities discussed, COHN, t. c., pp. 333-355, pls. i-iv.
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NEMATHELMINTHES.

NEMATODA (incl. GORDIACEA).

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- Philodina roseola*, Versailles, colour and characters, PRESSOIR, Ech. xvi, p. 76.
- Pleurotrocha parasitica*, on fresh water annelids, N. AMERICA, charac. JENNINGS, Amer. Natural. xxxv, p. 740, ? n. sp.
- Plaosoma sibirica*, Siberia, measurements and structure, DADAY, Z. Ergebn. ii, p. 453, pl. xxiv, figg. 1-4, n. spp.
- Proales mirabilis*, Lake Nurmijarvi, characters, STENROOS, Acta Soc. F. Fenn. xvii, p. 131, n. sp.
- Pseudocistes*, n. g., *rotifer*, n. sp., Lake Nurmijarvi, characters, STENROOS, t. c., p. 107, pl. i, figg. 11-17.
- Pterodina emarginula*, Lake Nurmijarvi, characters, STENROOS, t. c., p. pl. ii, figg. 31 & 32, n. sp.
- Rattulus sulcatus*, N. AMERICA, JENNINGS, Amer. Natural. xxiv, p. fig. 126, ? n. sp.
- Salpina macrocera*, N. AMERICA, JENNINGS, t. c., p. 752, fig. 133, ? n. sp.
- Schizocerca diversicornis*, figured, DADAY, Zichy Ergebn. ii, p. 454, pl. i figg. 5 & 6.
- Stephanops bifurcus* Bolton, Lake Nurmijarvi, characters, STENROOS, Acta Soc. Faun. Fenn. xvii, p. 153, pl. ii, fig. 17, ? n. sp.
- Syncheta pectinata*, *S. tremula*, *S. stylata*, floating eggs, ZACHARIAS, I. Centrbl. xxi, pp. 109 & 110.
- S. neglecta*, ZACHARIAS, t. c., pp. 381 & 382, n. sp.
- Triarthra brachiata*, London and Ireland, characters, spines, ROUSSEAU, J. Quekett Club (2) viii, pp. 143-145, pl. viii, n. sp.

GASTROTRICHA.

[The following memoirs relate to *Gastrotricha*, viz.:—DADAY (88), VOIGT (378).]

Plön, 2 n. spp., VOIGT (378).

New Guinea, 2 n. spp., DADAY (88).

Chatonotus serraticaudus, *nodicaudus*, p. 193, Plön, measurements and structure, VOIGT, Zool. Anz. xxiv; *C. ornatus*, New Guinea, DADAY, p. 28, f. 10, Termes. Fuzetek xxiv : n. spp.

Lepidoderma biroï, New Guinea, DADAY, p. 29, f. 11, t. c., n. sp.

MESOOZOA.

[The following memoirs relate to *Mesozoa*:—BENHAM (25), CAULLERY & MESSIL (64-67).]

Mesozoa treated as appendices to the phylum *Platyhelminia*, consist of the classes *Rhombozoa*, *Orthonectida*; *Trichoplax*, *Pennatodiscus*, & *Salinella* being left doubtful, BENHAM (25).

Development of *Orthonectida*, CAULLERY & MESSIL (65-67).

Free stage in *Orthonectida*, CAULLERY & MESSIL (67).

Morphologic development, classification, evolution and systematic position and n. spp. of *Orthonectida*, CAULLERY & MESSIL (64).

Orthonectida; n. spp., and morphology, development and classification, CAULLERY & MESSIL, Arch. anat. micr. iv, pp. 381-470, pls. x-xii.

Rhopalura metchnikovi, Cape de la Hague, in *Spio martinensis*, p. 401, pl. x, figg. 23-28, *R. pelseneeri* in *Tetrastemma flavidum*, p. 405, pl. x, figg. 32 & 33, pl. xi, figg. 29-31, 34, *R. julini*, Naples in *Scolecopsis fuliginosa*, structure and affinities, CAULLERY & MESNIL, t. c., n. spp. *Stæcharthrum giardi*, St. Martin's Bay, in *Scoloplos mülleri*, structure and affinities, CAULLERY & MESNIL, t. c., pp. 413-417, pl. xi, figg. 42-54, n. sp.

HEMICHORDA (incl. PHORONIS).

[The following memoirs relate to *Hemichorda*:—EMERY (111), IKEDA (166), MASTERMAN (229), M'INTOSH (245), ROULE (315), SPENGEL (343), TORREY (364).]

Development, ROULE (315); Development and phylogeny of the *Phoronidea*, MASTERMAN (229); Development, structure, and metamorphosis of the larva *Phoronis*, IKEDA (166).

N. America, n. sp., TORREY (364).

Enteropneusta: SPENGEL gives a taxonomic and synonymic revision, accepting three families, *Harrimaniidae*, *Glandicipitidae*, *Ptychoderidae*, and proposing two n. genn., Zool. Jahrb. Syst. xv, pp. 209-218. [An important paper from the nomenclatorial point of view.]

Glossobalanus, n. g. (= *Ptychodera* Spgl.) *minutus* Kow., synonymy, SPENGEL, Zool. Jahrb. Syst. xv, pp. 212-217.

Phoronidea; development, structure of larva, phylogeny, MASTERMAN, Zool. Anz. xxiv, pp. 228-233.

Phoronis; some general notes, EMERY, Compendio di Zoologia, Bologna, 1899; fertilization, development and metamorphosis, IKEDA, J. Coll. Japan xiii, pp. 507-592, pl. xxv-xxx; *P. sabatieri*, development, ROULE, Bull. Soc. Sci. Toulouse ii, 1899, p. 159.

P. pacifica, California, affinities, structure, TORREY, Biol. Bull. ii, pp. 283-288, 5 figg., n. sp.

Stereobalanus, n. g. (for *Balanoglossus* Spgl. partim), *canadensis* Spgl., SPENGEL, Zool. Jahrb. Syst. xv, pp. 213-216.



XVI. CŒLEENTERATA.

By

ALICE L. EMBLETON, B.Sc.

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INTRODUCTION.

DELAGÉ & HÉROUARD (32) have published the Cœlenterata volume of their *Traité Concrète de Zoologie*, and BEDOT (4) the historical and systematic portions of a general work on Hydroids.

A monograph of British Graptolites of the family *Dichograptidae* by Miss GERTRUDE ELLES & Miss ETHEL WOOD (38) has appeared; the subject is dealt with in a thorough manner, there being many new contributions to the knowledge of the group.

The Hydromedusæ of North America have been monographed HARGITT (59).

NUTTING (97) furnishes collectors in the Woods Holl region a practical and concise means of identifying the spp. occurring in the

STUDER (119) contributes to our knowledge of the *Alcyonaria* from North Atlantic, and of the *Madreporaria* from the Pacific Islands.

HARTLAUB (61) contributes an exhaustive monograph of the *Sertularella* in which he gives the history of the species, with syno and structure. It includes some instructive tables.

KASSIANOW gives us a study of the nervous system of the *Leucern* (69).

Several papers have appeared during the year on the subject generation, showing that the process—as has already been demons in Planarians—is also very widely distributed in this class and is c to a great extent; though the regenerating fragment must not be b certain size. See MORGAN (89 & 90), DRESCH (37).

CARLGREN (20) gives some interesting information about Acti rearing their young in brood pouches.

AGNES KELLY (70) discusses the skeletal secretions of Cœlent and of other organisms from the point of view of their mineral composition.

HARGITT's paper (58) deals with some peculiarities of variation. Am other things he shows that variability is greater in tentacles than in other organs.

MAYER (83) also has a paper on the variation of a "newly-s species of medusa."

The number of Titles is larger than usual but this is partly due t Recorder last year being obliged to omit examination of a certain nu of periodicals in consequence of his departure for Ceylon.

Some change has been made in the arrangement of the Record object being to simplify it both for the student and for the Recorder making these changes I have taken advantage of the opinions of so our best authorities on the class.

TITLES.*

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5. BELL, R. Fossiliferous rocks of Baffin Land. Rep. Geol. Canada xi, p. 20M. [Upper Silurian genera of corals mentione
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* An asterisk prefixed to a quotation indicates that the Recorder has not the Journal or Work referred to. [Nos. 2 & 8 are wanting as the result oversight.]

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22. CITRON, E. Über mehr zellige Sinnesorgane (Palpocile) bei *Syncoryne sarsii*. Zool. Anz. xxiv, pp. 625 & 626. Brief summary, J. R. Micr. Soc. 1902, p. 55.
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— . [See also ELLES & WOOD (38).]
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XVII. SPONGIÆ.

BY

PROFESSOR E. A. MINCHIN.

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INTRODUCTION.

I. The Zoological Record of Sponges for 1901 includes seven publications, not counting abstracts and reviews, but of this total dates from 1897, one from 1898, two from 1899, eight from 1900, a memoir published in 1902 [WHITELEGGE (65)] has been included. Recorder, since it seemed unadvisable to separate it from the work which it was merely supplementary. There remain 61 titles belonging strictly to 1901.

II. In Biology very great interest attaches to the splendid memoir of the *Euplectellidæ* of Japan by IJIMA (29), and to his investigations of the structure and development of these sponges. Attention is drawn especially to his discovery that in the dermal layer of Hexactinellids there is no distinction between epithelial and parenchymal, the intercellular ground-substance being totally undeveloped. In this point the Hexactinellida contrast with all other known sponges, and on a lower level of differentiation than the Calcarea or Demospongiae. The point is also one which has a very obvious bearing upon the "derm" question in sponges. Very interesting also are IJIMA's observations upon the larvæ of Hexactinellids and their derivation from congenital archæocytes, a point in which he supports H. V. Wilson's much criticised views with regard to "gemmule-larvæ." According to MAAS (38), this is also a sponge in which reproduction by gemmules formed from archæocytes has replaced the normal method of sexual reproduction and larval development. The observations of MAAS (37) upon formation of asters in *Tethya* by fusion of minute tetraxons may be termed sensational, and furnish an unexpected clue to the relationship of *Tethya* to Tetraxonid ancestors. Another memoir of phylogenetic interest is that of SCHRAMMEN (50), in which a polyphyletic origin is asserted for the group apparently so homogeneous as the Lithistida. Of other works in this section, the investigations of BÜTSCHLI (9) upon the minute structurally calcareous and siliceous spicules may be noted. The studies of PETERSEN upon the parenchymal spicules of *Spongillinae*, are doubtless of interest to those who can understand the language in which they are given in the world. In the economic section, SEURAT (52) furnishes a very summary of knowledge relating to sponges of commercial importance.

III. Under the heading Geographical Distribution TOPSENT (59) completes our knowledge of the sponge-fauna of the coast of Algiers, and makes important contributions (60) to our knowledge of Antarctic sponges and describes some new forms of Hexactinellids (58) from the Antarctic. WHITELEGGE's studies (64 & 65) upon the sponge-fauna of New Wales are very valuable, and ARNESEN (5) gives a list of the Calcareous sponges of Norway. Useful local lists are given by KINGSLEY (31), and WHITE (63). WELTNER (62) revises and completes our knowledge of the water sponges of Celebes. In palæontology the most important work is that of those of MALFATTI (40), SCHRAMMEN (50), and VINASSA DE REGNY (61).

IV. The contributions on the side of Systematic do not comprise novelties so remarkable, or monographs so voluminous, as those recorded for the previous year, but in every group the additions to our knowledge are numerous. TOPSENT (56-60), is one of the foremost contributors. He describes a number of new Hexactinellida and Monaxonida. WHITELEGGE (64 & 65) has done most useful work in reexamining the types of Australian sponges and correcting the extraordinary errors contained in the original descriptions. *Ex fumo dare lucem* should be his motto. SCHRAMMEN's work (50) on Cretaceous Lithistida continues his previous studies on the Choristida, and since he has now been able, as he states, to consult Sollas's Challenger Monograph and other memoirs of impor-

his studies have gained in clearness. Other important systematic works are those of CLARKE (11), IJIMA (29), MALFATTI (40), VINASSA DE REGNY (61) and WELTNER (62). The following table is a summary of the new genera, etc., recorded below.

	New genera	Altered generic names	New species	New varieties
Calcarea	2†	1†	1+10†	
Hexactinellida	1+ 2†		13+ 8†	
Demospongiæ				
(1) Tetraxonida ...	17†		21†	
(2) Monaxonida ...	1+ 1†		24+ 2†	4
(3) Keratosa ...			3	2
(4) Myxospongida ...				1
Incertæ Sedis	1†		1†	
Total	2+23†	1†	41+42†	7

† Extinct forms.

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* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

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II. BIOLOGY.

A. EVOLUTION.

(i) *General Principles.*

Nothing special.

(ii) *Relations of Sponges.*

Sponges may be, after all, "protophytic and not protozoic," because assimilate silica; GUPPY (25) p. 168.—Sponges and Radiolaria "numerous affinities" and should be "classed at a feeble distance"; DOLLFUS (18).—Sponges regarded as a circle (Kreis) of the Coelenterata; KÜKENTHAL (34) p. 32.—Sponges as a "type" distinct from Coelenterata; GRABAU (24) p. 118.—Sponges as a separate phylum; SCUDLER (49), SHIPLEY & MACBRIDE (53).

(iii) *Phylogeny.*

The structure of the ancestral Olynthus, and the evolution from it of the three great groups of sponges, as inferred from Ijima's discovery with regard to the structure of Hexactinellids; MINCHIN in review IJIMA (29).

Tethya as a connecting link between Tetraxonida and Monaxonida; MAAS (37), see II, B, iv, c. The genus *Heteroraphidites* n. g. [vide ii, c] regarded in a similar light; SCHRAMMEN (50) pp. 18-20.

The polyphyletic origin of the Lithistida; the Tetracladina and Megastina are descended from Choristid ancestors, the former from *Pantrellidæ*, the latter from *Raphididæ*; the Rhizomorina and Anomolozoa spring from Monaxonid ancestors; SCHRAMMEN (50) p. 3, and pp. 23-

B. MORPHOLOGY.

(i) *General Accounts.*

SHIPLEY & MACBRIDE (53).—The fresh-water sponge as a type of Porifera, with remarks on other sponges; SCHMELL (49) pp. 476-4

General account of Sponges, with a special description of the fresh-water sponge, and of preparations of *Sycandra raphanus*, *Oscarella lobularis*, and other siliceous sponges; KÜKENTHAL (34) p. 32, and pp. 36-45.—General structure of *Euplectella*; IJIMA (29) pp. 37-57.—General anatomy of the Bath-Sponge; SEURAT (52) pp. 258-261.

(ii) External Characters.

(a) **Attachment.**—*Malacosaccus floricomatus*, n. sp., lives fixed in the mud by a long stalk; so also, probably, *M. unguiculatus* F. E. S.; TOPSENT (58) p. 450.

(b) **Form and Mode of Growth.**—Parietal ledges and "cuff" of *Euplectella*, IJIMA (29) p. 40.

(c) and (d).—Nothing special.

(iii) Anatomy of the Soft Tissues. Canal-System.

Canal-System of sponges in general; KÜKENTHAL (34) pp. 36-38.

Anatomy of *Sycandra raphanus*, with an original figure; KÜKENTHAL (34) pp. 42 & 43, fig. 34.—Canal-system of †*Amblysinphonella lörentzei*, n. sp., p. 20: of †*Corynella rauffi*, n. sp., p. 9: of †*Myrmecidium hindei*, n. sp., p. 10: of †*Oligocœlia zitteli*, n. sp., p. 18: of †*Steinmannia semseyi*, n. sp., p. 14; VINASSA DE REGNY (61).

Canal-Systems of Miocene siliceous sponges; Malfatti (40) pp. 279-281.

Body-wall of Hexactinellids composed of (1) the external trabecular layer, (2) the layer of chambers, and (3) the internal trabecular layer; these three layers are made up histologically of two kinds of differentiated tissue, the flagellated chamber-wall or *membrana reticularis*, composing (2), and the trabeculæ, composing (1) and (3); p. 41. General arrangement of the soft parts of *Euplectella marshalli*, and their relation to the spicules. The entire thickness of the sponge wall is composed of "a nearly uniform network of thin trabeculæ which keep the folded chamber layer suspended midway between the two surfaces of the wall." Both excurrent and incurrent canals are simply intertrabecular spaces; the former are direct continuations of the gastral cavity into the hollows of the folds of the chamber-layer; the latter are lacunæ pervading the recesses between the folds. The ectosome is a part of the general trabecular system; the most superficially situated trabeculæ form the dermal membrane. The endosome is similar in structure. Spicule-rays never pierce the chamber-wall, but lie between the chambers; pp. 117-128. Oscula and sieve-membranes of *Euplectella*, p. 38, footnote. Bottom-plate or inferior sieve-plate of *Euplectella*, p. 40. Corona of *Regadrella komeyamai*, derived from a sieve-plate, pp. 253 & 254, 267 & 268; IJIMA (29).

Anatomy and Canal-System of *Tethya*. The flagellated chambers open into the efferent canals by wide openings (apophyses), not by special ducts (aphodi), *pace* Lendenfeld. The medullary portion of the sponge consists throughout of chamber-tissue, and a special central portion containing genital products (as described by Delage) is not to be distinguished; MAAS (38) p. 267.

Canal-System of *Spongilla*; KÜKENTHAL (34), pp. 38-40: of *Pachydictyum globosum*, n. g. n. sp. of *Spongillinae*, p. 189: of *Spongilla sarsinorum* n. sp. and *S. (?) vasta* n. sp., pp. 197 & 200; WELTNER (62). Of the Bath-Sponge; SEURAT (52) p. 259. Anatomy of *Oscarella lobularis*; KÜKENTHAL (34) pp. 43 & 44. Canal-System of *Halisarca dujardini* var. *magellanica*; TOPSENT (60) pp. 44 & 45.

(iv) *Skeletal System.*(a) **General Accounts.**—The Bath-Sponge; SEURAT (52) p

(b) **Material of the Skeleton.**—The nature and minute structure of calcareous spicules, studied in the large monaxons of *Leucandra*. The spicules show a very distinct finely alveolar structure when but do not at the same time increase in thickness, as do siliceous spicules under similar conditions, so that the resulting distinctness of the alveolar structure cannot be attributed to the enlargement of spaces or alveoli present, but possibly to a fusion of minute cavities into larger, alveoli. The spicules show no trace of an axial thread. The siliceous sheath which remains when the spicules are dissolved in strong acid appears not to consist purely of organic matter, but is composed of inorganic material in some form, possibly CaCO_3 ; BÜTSCHLI (9).

The nature and minute structure of siliceous spicules, studied in the macroscleres of *Geodia placenta* and *Tethya lyncurium*. The siliceous substance is amorphous silica, corresponding to mineral opal. From the spicules produces a finely alveolar system of minute closed spaces, probably present in the normal unaltered condition, but too fine to be seen until the alveoli have been enlarged by the action of heat in converting into vapour the water contained in them. The stratified structure of the spicule is further evidence for this view. The axial thread shows reactions characteristic of albuminous substances (pp. 262–267), but in the normal condition is firm and brittle, but becomes softened and dissolved by hydrofluoric acid. A certain amount of organic matter is contained also in the siliceous substance of the spicules. The spicules of *Tethya* are enveloped by a great number of richly branched and anastomosing bands, which stain deeply with dahlia, and evidently represent silicoblasts (p. 269, text figs. a & b), [cf. MAAS (37) II, B, iv, c] and in spicules in which the axial thread is deeply stained and dissolved there can be seen not infrequently bodies similar to cells, generally branched, at regular intervals between the axial thread and the wall of the axial canal (p. 271, pl. xxi, figs. 10–12); BÜTSCHLI (9).

The nature of the material of the skeletons of Miocene siliceous sponges; MALFATTI (40) pp. 276–279.

(c) **Morphology, Development and Nomenclature of Skeletal Elements.**—Sponge-spicules not to be regarded as intermediate between true crystals and living structures; criticism of the "biocrystal" theory of Haeckel; BÜTSCHLI (10) p. 81.

Spiculation of Hexactinellids in general and of *Euplectella* in particular; pp. 42–57. T-shaped triactins termed *Thetactins*, p. 44 (the name is more correctly *Tauactins*; LENDENFELD in review).—The first spicules formed in the larvæ of *Vitrellula fertile* and *Leucopsacus orthoceras* (Hexactinellids) are stauroactins, which are replaced in the adult by pentactins; pp. 162 & 193 footnote and 246 footnote. Development of the hexasters, especially of the floricores, pp. 52 & 53, figs. 29–31, and the graphicores, pp. 53 & 54, figs. 32–35, of *Euplectella marshalli*. Each hexaster begins its development as a hexactin, imbedded in a syncytial *scleroblast-mass*, a body of protoplasmic substance in the neighbourhood of crowded nuclei, pp. 192–200, see also pp. 75–77; IJIMA.

Structure of the skeletons of Miocene siliceous sponges; MALFATTI (40) pp. 274–276.—Peculiar enlargements and dilatations of the axial canals of the triaxes of *Isops canaliculata* and the oxeas of *Toposentia gossypium* (Topsent) (59) pp. 336 & 347, pl. xiv, figs. 5, t & 6, o.—Development of Lithistid desmas; SCHRAMMEN (50) pp. 23 & 24.

Development of the spicules of *Tethya prox. lyncurium*. All spicules arise at first in a single mother-cell or scleroblast, to which other formative cells may or may not join themselves. (1) The small chiasters of the surface arise in differentiated cells of the dermal layer. The scleroblasts are spherical or oval, about 15μ in diameter, and characterized by small, finely reticulate nuclei, dense evenly granulated protoplasm, and a distinct cell-membrane. The first sign of a chiaster are a few radiating beams of silica placed asymmetrically on one side of the scleroblast and centred at a point near the nucleus. As the rays are formed the granules of the scleroblast are absorbed until the whole cell is clear and hyaline. The rays of the chiaster continuing to grow out from their point of union at the common centre, the scleroblast becomes stretched into an irregular form, until it finally gives way, setting free the chiaster, to which it is only loosely attached. The scleroblast after completing the spicule has now again become a compact cell which takes up stains; its fate is uncertain, but probably it becomes an ordinary dermal cell. The larger chiasters of the parenchyma are formed in a similar manner, but sometimes, apparently, secretion of silica commences before the division of the mother-cells of the scleroblasts is complete, so that the formative cell of the chiaster is found to contain two nuclei. (2) The spherasters arise in cells similar to undifferentiated archæocytes, with a vesicular nucleus containing a nucleolus, and with a body of indefinite contour, not enclosed in a membrane. The first sign of the spheraster is a globular concretion, deposited in a vacuole; the globule grows out into rays, which are variable in number, but not infrequently exactly four; several, or at least two scleroblasts, each containing a minute tetraxon spicule formed in this way, approach each other and unite, and the tetractines fuse to form a single spicule with a massive spherical centre and at least eight small rays. Further growth [and formation of additional rays ?] is the result of deposition of fresh layers of silica by formative cells of uncertain origin, but probably recruited from the parenchyma. When the spicule is complete the formative cells probably return to the tissues. (3) The monaxons arise like the spherasters in undifferentiated cells, in which a number of siliceous concretions appear simultaneously, but soon unite to form a small rod [cf. WELTNER (62) *infra*]. Other formative cells become opposed to the original scleroblast, so that the large monaxons are covered by cells, arranged either as an epithelium or as a syncytial layer. When the spicule is complete the formative cells appear to break up and perish. [Cf. BÜTSCHLI (9), *supra*, II, B, iv, b.]

The chiasters are to be classed as true microscleres, formed each in a single differentiated cell of the dermal layer. The spherasters are to be regarded as fused tetractines and classed with the monaxons as macroscleres, each formed at first in an undifferentiated cell to which other formative cells become apposed. There is no evidence that the monaxons of *Tethya* arise by reduction of tetraxons. The link between Tetraxonida and Monaxonida is furnished by the development of the spherasters, in which the ancestral tetraxons regularly make their appearance; MAAS (37): (38), pp. 270 & 271.

The snake-like twisted monaxon megascleres of many fossil Monaxonida and Tetractinellida to be distinguished by the prefix *ophi-*, as ophiamphi-strongyle, ophitylostyle; SCHRAMMEN (50), p. 17 footnote.

Parenchymal spicules of *Spongillina* [in Bohemian]; PETR (44). The nature and occurrence of the siliceous globules or "pearls" of *Spongillina* and sponges generally. Those of *Spongillina*, at least, are to be regarded as abnormal formations, referable in part to mechanical or pathological causes, and not as malformations of monaxon spicules. Doubt attaches to the statement of MAAS [(37) *supra*] that the monaxons of *Tethya* arise by fusion of minute irregular concretions; the first rudiment of a monaxon is

a rod or rhabdus, and the concretions figured by Maas are a formations; WELTNER (62), pp. 190-193.

Sandgrains, etc. in spongin fibres; they penetrate from the through the skin of the sponge; SEURAT (52), p. 261. A careful the fibres of *Arenochalina mirabilis* leads to the conclusion that the fibres do not take in sandgrains at their apices, as supposed by I [(47) Zool. Rec. 1900, p. 42], but at any point of their surface at distance below the growing apex; WHITELEGGE (65) pp. 213 & 214.

(d) **Skeletal Anatomy.**—Skeletal anatomy of *Euplectella* (29) pp. 43-57: of *Craticularia*; MALFATTI (40) pp. 282-284: of *Gilla*; KÜENTHAL (34) pp. 40-42.

[N.B. Details of the spiculation and skeletal anatomy of individual species, such as are found in every systematic description, are not separately here.]

(v) *Histology.*

(a) **General Accounts.**—The old sarcode-theory of O. S. and the syncytium-theory of Haeckel "have preserved a certain de applicability" in the case of the dermal layer of Hexactinellida, p. General histological composition of Hexactinellid body-wall, p. 41 B, iii].—Summary of the histology of *Euplectella marshalli*, pp. 19 IJIMA (29).

Histology of *Tethya*; MAAS (38) p. 267: of *Spongilla* (?) *vasta*, p. 200: of *Spongilla sarasinorum*, n. sp., p. 197: and of *Pachyd globosum*, n. g. n. sp. of *Spongillinae*, p. 189; WELTNER (62): of the sponge; SEURAT (52) pp. 259-261.

(b) **Histology of Special Organs or Classes of Cells.**—Cell-outlines not demonstrable by special methods on either trabecular chamber-wall, p. 33.—Trabeculae and dermal membrane of *Regia okinoseana*, p. 247.—Structure of the trabeculae of *Euplectella marshalli*. The entire trabecular system consists of a network, or cobweb, of syncytial protoplasm, containing "free" nuclei, i.e. without cell-outlines; see them. The "trabecular cobweb" is probably unstable in form, to a certain degree, during life, as the result of protoplasmic contraction. The trabeculae are not covered by a flat epithelium (*pace* Schulze), they contain any intercellular matrix or *mesoglaia*, which is totally developed in Hexactinellida. The naked syncytial trabeculae "stand in the mesenchyme of other sponges"; they represent "the primitive mesenchyme, from which both the connective tissue cells and the pinacocytes of other sponges have later differentiated themselves"; pp. 147-165; IJIMA (29).

Epithelial contractile elements in *Tethya*; MAAS (38) p. 267. Cells spheruleuses of *Gellius rudis*, p. 14.—Collenchyma and cells spheruleuses of *Halisarca dujardini* var. *magellanica*, p. 45; TOBIAS (60).

Structure of the flagellated chambers and the choanocytes of *Euplectella marshalli* etc. The chambers in most Hexactinellids have the form of cups, thimbles, or glove-fingers, but in two species of *Hyalonema* they "are represented by an intercommunicating system of canals, the wall consists of the *membrana reticularis*." Close to the rim of the apical part of each chamber is united to its fellows by a *connecting membrane*, fenestrated, which, together with the walls of the chambers themselves, divides off the incurrent lacunae externally from the excurrent lacunae internally. The connecting membrane is continued inwards round the aperture of the apophysis as an iris-like *marginal membrane*; both are parts of the trabecular system. The chamber-wall is constituted by

reticular membrane, made up of peculiar choanocytes with flattened and ramified bodies which are in organic fusion by means of their lateral protoplasmic processes to form a fenestrated syncytial membrane. The minute meshes of the network thus formed are freely open, not closed by any basal membrane, *pace* Schulze, and represent so many prosopyles. The trabeculæ of the dermal layer attach themselves directly to the reticular membrane on its outer side. The collars of the choanocytes, approximately cylindrical in form, and 5–6 μ in length, are free and separate from one another. The flagellum is 17–19 μ in length. The *collum* and *basal plate* of Schulze could not be found, nor yet the alleged connections between the distal portions of the choanocytes; pp. 128–147.—Chambers of *Regadrella okinoseana*, p. 248; IJIMA (29).—Flagellated chambers of *Halisarca dujardini* var. *magellanica*; TOPSENT (60) p. 44.

Archæocytes of *Euplectella marshalli* and other Hexactinellids, their structure and occurrence; groups of them occur in the narrow incurrent interspaces between the chambers, and in the deeper parts of the choanosome these “archæocyte-congeries” attain a very considerable size, pp. 165–172. The archæocytes give rise to (1) *Thesocytes* containing numerous fat-like spherules, probably reserve nutriment, pp. 173–178; (2) reproductive elements, pp. 179–185. The archæocyte-congeries also appear to give rise to reproductive bodies, possibly to larvæ, of an asexual nature (pp. 185–190).—Archæocytes and thesocytes of *Regadrella okinoseana*, pp. 247 & 248; IJIMA (29).—“Cellules sphéruleuses” [archæocytes?] of *Eurete alicei*; TOPSENT (58) p. 463.—Archæocytes of *Tethya*, and their rôle in the budding; MAAS (38).

(vi) *The Germ-Layer Question.*

Sponges composed of a gastral (endoderm) and a dermal (meso-ectoderm) cell-layer; KÜKENTHAL (34) p. 32.—The observations of Ijima upon the structure of the dermal layer in Hexactinellids lead to conclusions directly antagonistic to the mesoderm-theory, still maintained for sponges by many authorities; MINCHIN in review of IJIMA (29).

C. PHYSIOLOGY.

(i) **General Accounts.**—The Physiology of the Bath-Sponge; SEURAT (52) p. 260.

(ii) **Nutrition.**—See SEURAT (52).

(iii) **Respiration.**—Vacant.

(iv) **Secretion and Excretion.**—**Pigments, Ferments, etc.**—Diastases of *Suberites domuncula*, with some observations upon those of *Cydonium gigas* and *Tethya lyncurium*; COTTE (13).

(v) **Irritability, Contractility, etc.**—Contractility in the trabeculæ of *Euplectella marshalli*; IJIMA (29) pp. 148–150.

(vi) **Individuality.**—*Euplectella* “rather polyzoic than monozoic”; the sieve-plate and its apertures regarded as “a close aggregation of..... oscula”; the parietal gaps regarded as “secondarily formed oscules”; IJIMA (29) pp. 37–39 and p. 215. [Cf. II, E, ii, c infra.]

(vii) **Miscellanea.**—**Experimental Physiology.**—Nothing.

D. BIONOMICS.

(i) **General Accounts.**—Vacant.

(ii) **Special Habits.**—Boring habits of *Clionidæ*; ROVERE p. 231.

(iii) **Habitat.**—The composition of the Cretaceous sponge indicates a sea-depth of about 150 meters; SCHRAMMEN (50) p. 22.—[of siliceous sponge-faunas of the middle Miocene; MALFATTI (40) p. 274.—Habitats of fresh-water sponges in the Elbe; FRIČ & VÁVRA p. 86.

(iv) **Defence and Protection.**—Function of the sieve-pore in *Euplectella* in guarding against the intrusion of animals into the cavity, p. 38, footnote; defensive function of the corona of *Reg komeyumai*, p. 253; of raphides, p. 101; IJIMA (29).

(v) **Enemies of Sponges.**—Trichopterous larvæ (*Leptocerus*) ing on fresh-water sponges; FRIČ & VÁVRA (23) p. 86.

(vi) **Parasitism and Commensalism.**—The macrourous tacean *Richardina spongicola* entangled in *Hyalonema masoni*.—The *Cryptodromia pileifera* always protected by a sponge; ALCOCK (1) p. 38.—Commensal Hydrozoa, causing papilla-like prominences of the wall, lodging the hydranths, in *Regadrella phoenix*, pp. 269 & 274.—[roid and Polychæte Annelid in gastral cavity of *Regadrella okin.* p. 251.—Commensal hydroid colony tenanted the sponge-wall of *W leuckarti*, causing a growth of tubercles and branches, p. 283, and pp. 293.—*Spongicola venusta* occurring in pairs in gastral cavity of *Eup Oweni* (p. 215), in *Euplectella curvirellata* and *Hyalonema sieboldi* (1 occurring constantly in the gastral cavity of *Euplectella marshalli*, 1 in pairs, occasionally single; also an Ophiuroid, probably *Ophioth* (pp. 87 & 201).—Undetermined macrourous Crustacean, occurring in gastral cavity of *Euplectella imperialis*, exceptionally absent in the specimens, but frequently so in the smaller; occurrence of *Choril* an oxyrhynchous crab, in the same situation; frequent occurrence Ophiurids, p. 85, IJIMA (29).

Neuropterous larvæ (*Sisyra fuscata*) common in fresh-water sponges and Hydrachnids (*Arrenurus affinis*) on the surface of the sponges & VÁVRA (23) p. 86.—*Podophrya (fixa?)* in the canal-system of *Spongi* *vasta*, p. 201.—Acari in *Pachydictyum globosum* n. g., n. sp. (Spongi p. 196; WELTNER (62). *Polythoa* on *Axinella cinnamomea*; TOPSEI p. 348.—An Isopod, *Cymodoce*, infesting *Plumohalichondria austral* other sponges; WHITELEGGE (64) p. 91.

(vii) **Sponges as Geological Agents, Fossilization.**—nomical characteristics of sponges from a palæontological point of GRABAU (24) pp. 338, 339.

A calcified sponge rock; JUKES-BROWNE & SCANES (30) p. 105.—Sponges; HIND & HOWE (28) pp. 395, 397, 399.

Fossilization of siliceous sponges in the Chemung fauna; CLARE p. 188.—Of triassic Calcareous from the Bakony; VINASSA DE REGN p. 5.—Conservation of sponge-skeletons in Cretaceous rocks; SCHRAMMEN (50) pp. 1 & 2.—Fossilization of siliceous sponges of the middle Miocene; MALFATTI (40) pp. 270-273.

E. REPRODUCTION AND DEVELOPMENT.

(i) *Germ-Cells, Fertilization.*

Ova? of *Euplectella marshalli*; IJIMA (29) pp. 181-185.

(ii) *Embryology.*

(a) **General Accounts.**—SHIPLEY & MACBRIDE (53) pp. 73 & 74. Reproduction and embryology of bath-sponges; SEURAT (52) pp. 267-269.

(b) **Early stages, larvae, and metamorphosis.**—Larvæ of *Vitrollula fertile* and *Leucopsacus orthodocus*, briefly described. "The Hexactinellidan larva, as regards the arrangement of its cellular elements, is essentially similar to that of Monaxonid sponges." Speculations as to the probable course of events in the metamorphosis; pp. 162, 163.—Development of the larvæ of *Leucopsacus orthodocus* and *Vitrollula fertile*, pp. 187 & 188; IJIMA (29).

Eggs and larvæ in *Pachydictyum globosum* and *Spongilla* (?) *vasta*; WELTNER (62) pp. 196 & 200.

(c) **Post-Larval Development, Organogeny.**—Description of a series of young specimens of *Regadrella okinoseana*, comprising various stages "from one in which the body is smaller than a grain of rice to such as have the characteristics of the adult nearly completely developed." In the earliest post-larval stages the body has the wall smooth and imperforate, and provided with a single terminal osculum. In specimens 13-15 mm. in length the outer surface becomes uneven, and the parietal oscula make their appearance. Later (length 20 mm.) the sieve-plate is formed by addition of new terminal oscula to the one already present. In the youngest stages "the dermalia are exclusively pentactius, not hexactins as in all mature Euplectellids." Hexactins begin to be formed at about the period when the parietal oscula break through; pp. 239-247.—Young specimens of *Euplectella marshalli*, the smallest 18 mm. in length, and without parietal oscula, pp. 103-116.—Young specimens of *E. imperialis*, pp. 79-83; IJIMA (29).

(iii) *Asexual Reproduction.*

(a) **Fission and Vegetative Budding.**—Vacant.

(b) **Germinal budding.**—An apparent case of internal budding in *Staurocalyptus glaber*, p. 186 footnote.—Larva of Hexactinellids perhaps a "gemmule larva," formed asexually from an archæocyte-congeries (vide II, B, v, b); IJIMA (29) pp. 185-190.

Development of the buds of *Tethya lyncurium*. In this sponge-genus the asexual method of reproduction by budding seems to have completely replaced the sexual method. The entire material of the bud is derived from indifferent archæocytes which originate from the deeper parts of the sponge-body and travel to the periphery along the spicule-bundles. Each bud is at first a collection of numerous archæocytes, similar amongst themselves, aggregated in or below the cortex, and is not derived from a single cell as formerly stated. The tissues of the bud arise by specialization of the indifferent cells, and in no case is differentiated maternal tissue taken over into the bud; but the process of differentiation of the archæocytes "is not sharply defined as regards time or place," and may be hastened or retarded in different buds, which therefore differ considerably in early

stages. The first step in the development of the bud is the specialization of a number of the indifferent cells to become scleroblasts which secrete macroscleres, monaxons and spherasters [see II, B, iv, c]. The differentiation of the archæocytes, at a time when the bud is beginning to project from the surface of the sponge, gives rise to transitional form cells, from which are derived, by further specialization, the epithelial, fibrous, and connective-tissue cells of the dermal layer and the scleroblasts of the microscleres (chasters). The bud when set free is solid, and is composed of the classes of cells and spicules already mentioned, and archæocytes, but contains no flagellated chambers or collar-cells. The gastral layer originates at this stage by rapid division of centrally placed archæocytes into small elements, the mother-cells of the choanocytes, disposed at first in groups or cell-islands, which join together to form a distinct medullary region of the bud. In the medulla the rudiments of the canal-system arise as a number of spaces and lacunae, lined at first by the mother-cells of the choanocytes, but as the canals increase in size, the cells of the dermal layer push their way in to form a lining to them. The gastral cells become aggregated round small cavities, the flagellated chambers, where after further cell division they give rise to an epithelium of collar-cells. The bud becomes fixed at the time the canal-system is completely developed. The origin of the bud resembles that of the embryo in being derived from a number of archæocytes, but differs in that all individual archæocytes contribute to the composition of the bud, while in oögenesis one of them, the ovum, absorbs the others as food-material. In the embryonic development of sponges, the differentiation of the layers furnishes at first two germ-layers, dermal and gastral, and a third, the mesoderm. A parallelism between bud and embryo is also seen in the development of the canal-system and of the tissue-elements; differences, on the other hand, are seen (1) in that the dermal layer surrounds the gastral layer directly in the bud, but in the embryo only comes to do so after a metamorphosis with inversion of the layers; (2) in that the flagellated (choanocytes) are the first elements set apart in the embryo, the last in the bud. The course of development by budding is not, however, so completely contrasted with that of embryonic development as something peculiarly distinct. MAAS (38).

(c) **Regeneration.**—In *Regadrella okinoseana*, with consequent fragmentations, p. 250, and in *Euplectella imperialis*, pp. 83 & 84; in *marshalli*, pp. 200 & 201; in *Walteria leuckarti*, p. 292; IJIMA (29).

F. MISCELLANEOUS.

(i) **Technique.**—Practical study of Sponge-structure; KÜCKEN (34) pp. 36 & 44.—Methods of collecting and preserving sponges; JENSEN (4) pp. 6 & 7.—Methods for preserving Sponges for Histology; BOLLER (8) pp. 489 & 490.

Methods of collecting Hexactinellids and other Deep-Sea Animals in Sagami Sea, by means of the "dabo-line" or long line for deep-sea angling, pp. 16-31.—Methods for the preservation and histological study of Hexactinellids, pp. 32-36; IJIMA (29).—Methods of preserving *Tethya* for study of the budding; MAAS (38) pp. 265 & 266.

Methods for investigating the minute structure of calcareous spicules, p. 271; of siliceous sponge-spicules, pp. 236, 252, 257 & 262; BÜTSCHLI.—Preparation of fossil sponge-spicules from the chalk; SCHRAMMEN p. 2.

(ii) **Economics.**—Bath-Sponges; their structure, pp. 256-257; varieties and distribution, pp. 261-267; reproduction, pp. 267-

sponge-fisheries in the Mediterranean, pp. 270-274; attempts at acclimatization of sponges, pp. 274-276; spongingulture, pp. 276-280; regulation of sponge-fisheries, pp. 280-282; SEURAT (52).—General account of Bath-Sponges, their natural history, varieties, distribution, prices, modes of preparation and fishing, and other commercial details; COUPIN (15).—Sponge-Fisheries in the Mediterranean; COUPIN (16).—Commercial sponges from the Island of Tobago; ANON (3).—*Sponge-Fishery of Florida; SMITH (54).—Sponge-Fisheries and resources of West Indies and Florida; DUERDEN (21) pp. 136 & 137.—*Sponge-Fisheries in the Bahamas; EGGERS (22).—Commercial sponges from the Coastal waters of New South Wales, enumeration of the species, with notes on their economic importance, pp. 55-57, summary of previous experiments in sponge-culture, pp. 57-63; WHITELEGGE (64).

(iii) **Bibliography.**—MAAS (39).

(iv) **History.**—Of researches upon sponges in Austria from 1850 to 1900, with full bibliography; LENDENFELD (35).—Summary of previous observations on the budding of *Tethya*; MAAS (38) pp. 264 & 265.—Historical summary of experiments upon sponge-culture; WHITELEGGE (64) pp. 57-63.

(v) **Folk-Lore, Popular notions.**—*Euplectella oweni*, with the contained pair of Crustacea (*Spongicola*), as "a felicitous object betokening eternal connubial love" in Japanese wedding ceremonies; IJIMA (29) p. 204, footnote, and p. 216.

III. DISTRIBUTION.

A. GEOGRAPHICAL.

a. MARINE.

(i) **General.**—Bathymetrical distribution of sponges in general, in present and past times; SEELIGER (51) pp. 23 & 47.

(ii) **Atlantic Ocean and Adjacent Seas.**—Coast of Norway, Calcareous sponges; the additions to the Norwegian fauna are *Axcandra angulata* Lend., *Sycandra coronata* (Ell. & Sol.), *Ute glabra* O.S., *Ebnerella nitida* n. sp., and *Leucandra aspera* (O. S.); ARNESEN (5).—Calcareous sponges of Bergen; ARNESEN (6).—Bay of Biscay, Coast of Asturias; *Rhaphidophlus filifer* R. & D., var. *cantabrica* n. var; ORUETA (42).

Sponges from the Coast of Algeria, criticism of the list given by Schmidt, with synonymy of his species, pp. 327-334; description of a collection of 40 species dredged on the coral banks of La Calle, pp. 334-364; novelties for the Algerian fauna are *Erylus discophorus*, *E. stellifer*, *Placortia simplex*, *Hymedesmia bistellata*, *Prosuberites longispina*, *Topsentia glabra*, *Axinella verrucosa*, *A. cannubina*, *Haliconemia patera*, *Raspailia gracillima*, *Myrilla banyulensis*, *Hymenaphia lacazei*, *H. viridis*, *Leptostia dujardini*, *L. luciensis*, *L. baculifera* n. sp., *Yvesia rosea*, *Stylotella columella*, *Batzella inops*, *Gellius angulatus*, *Stelospongia aspergillum*, *Euspongia officinalis*, var. *adriatica* and *exigua*, and *E. irregularis*, var. *ramodigitata* n. var; complete list of 93 sponges from Algerian Coasts, and comparison of the Algerian fauna with other faunas, pp. 362-367; TOPSENT (59).

Azores, Hexactinellid fauna; n. spp. of *Malacosaccus*, *Aphrocallistes*, *Chonelasma*, *Eurete*, and *Farrea*; TOPSENT (58).

Eastern Canada, list of Sponges; WHITEAVES (63) pp. 11-18.—Casco Bay, Maine, list of sponges; KINGSLEY (31) p. 161.—Bermuda, *Siphono-*

chalina stolonifera n. sp. and Bahamas, *Hircinia purpurea* and *H* n. spp.; WHITFIELD (66).—Tobago Island, commercial sponges ANON. (3) p. 637.

Straits of Magellan; *Leucosolenia* [*Clathrina*], *Sycon*, *Reniera*, *arca*; TOPSENT (60), p. 3 and p. 47.

(iii) **Indian Ocean and Adjacent Seas.**—Cape Color N. of Lion's Head, 140 and 154 fathoms, *Rhabdocalyptus lophodis* n. sp.; KIRKPATRICK (32).

(iv) **Pacific Ocean and Adjacent Seas.**—Sagami Se topography, pp. 6–15, and Hexactinellid fauna; Japanese *Euplect* chiefly from the Sagami Sea, *Euplectella*, *Regadrella* and *Walteria*, 8 spp. of which 2 new; IJIMA (29).

Copper Island, Commander (*alias* Kommandor seu Komandorski) Is Behring Sea, *Grantia monstrosa*; DAWSON (17) p. 192A.

New South Wales, Coastal Beaches, *Halichondria* and *Ker* *Reniera*, *Halichondria*, *Pachychalina*, *Chalina*, *Siphonochalina*, *chalina*, *Chondropsis*, *Raphisia*, *Pseudohalichondria*, *Desmacidon*, *M* *Clathria*, *Echinoclathria*, *Plumohalichondria*, *Aulena*, *Raspailia*, *A* *Ciocalyptra*, *Chalinopsilla*, *Phyllospongia*, *Leiosella*, *Euspongia*, *I* *spongia*, *Coccinoderma*, *Thorecta*, *Stelospongia*, *Hircinia*, *Ianthella*, 67 spp. of which 9 are new, and 1 n. var.; WHITELEGGE (64 & 65).

(v) **Arctic Seas.**—Enumeration of the Tetractinellida known the present to occur in Arctic seas, in all eight species; TOPSEN p. 5.—Comparison of Arctic and Antarctic sponge-faunas; TOPSENT (57) & (60).

(vi) **Antarctic Seas.**—Sponges collected by the Belgian Ant expedition, in all 26 spp., viz. *Calcarea* 2, *Monaxonida* 13 (incl. 8 n. 3 n. var.), *Carnosa* 2, *Hexactinellida* 9 (incl. 1 n. g., 5 n. spp.), 1 spongidia 1. The relation between Arctic and Antarctic sponge-fauna discussed, and only three species of cosmopolitan range (*Leucos lamarcki*, *Halichondria panicea*, and *Dendoryx incrustans*) are found common to both. The evidence from sponges is therefore again theory of the bipolarity of faunas. A peculiar character of the Ant Sponge-fauna is its richness in Hexactinellida, on the one hand, an absence of Monoceratina [Dictyoceratina] and Tetractinellida, on the hand; TOPSENT (56) pp. 8–11, (57) pp. 168 & 169 and (60) pp. 7 & p. 46.

B. FRESHWATER SPONGES.

(i) **Europe.**—Freshwater sponges of Germany, diagnosis of the species, with figures of the gemmules and skeletal elements, viz. *Spon lacustris*, *S. fragilis*, *Trochospongilla horrida*, *Ephydatia fluviatilis* *E. mülleri*; KÜKENTHAL (34) pp. 41 & 42.—Spongilline from the five spp.; FRÍČ & VÁVRA (23).—Spongilline fauna of Finland, *Spon* and *Ephydatia*, 4 spp., 1 var.; LEVANDER (36).

(ii) **Asia.**—Sponge-fauna of Lake Baikal, *Lubomirskia* spp., *Ephy olehonensis* n. sp., and *Spongilla microgemmata* n. sp.; KOROTNEFF pp. 306 & 307.

(iii) **Africa.**—Vacant.

(iv) **Australia.**—Sunda Islands and Celebes, list of fresh sponges hitherto known; additions to the fauna of Celebes are *P dictyum globosum* n. g. et sp., *Spongilla* (?) *sarasinorum* n. sp. and *vasta* n. sp.; WELTNER (62) p. 201.

(v) **America.**—Vacant.

B. GEOLOGICAL.

(i) GENERAL.

SELIGER (51) pp. 23 & 47.

(ii) CAINOZOIC.

(a), (b). Vacant.

(c). Pliocene:—Pliocene sponges of Borzoli in Liguria, *Craticularia* (2 n. spp.), *Donatispongia patellaris* n. g. et sp.; Malfatti (40) pp. 298–301. Pliocene boring sponges of Liguria, *Thoosa sabatia* n. sp. and *Cliona* sp.; ROVERETO (47) pp. 229–234.

(d). Miocene:—Middle Miocene of Italy; *Craticularia* (3 n. spp.), *Verrucocelia*, *Tremadictyon*, *Zittelospongia meandriiformis* n. g. et sp., *Hyalotragos*, *Cnemidiastrum*, pp. 270–293; Miocene spicular elements of sponges in the calcareous rocks of San Marino, pp. 293–298, pl. xxv, quadro i, ii, & iii; Malfatti (40). Cambrian and Silurian sponges in the Miocene of Sylt Island; STOLLEY (55)

(e), (f). Vacant.

(iii) MESOZOIC.

(a) Vacant.

(b) Cretaceous:—White Chalk of Dorsetshire, list of sponges; ROWE (48) pp. 71 & 72.—Upper Greensand and Chloritic Marl of Wiltshire, *Aphrocallistes*, *Chenendopora*, *Doryderma*, *Elasmostoma*, *Nematinion*, *Pachypoterion*, *Parkeria*, *Plocoscyphia*, *Porosphaera*, *Siphonia*, *Stauronema*, *Tremacystia*; JUKES-BROWNE & SCANES (30).—Arran Chalk: *Porosphaera globularis*, Hexactinellid and Tetractinellid Sponge fragments; NEWTON (41) p. 239.—Cretaceous of Denmark, *Plinthosella squamosa* and *Barroisia faxensis*, n. sp.; RAVN (45).—Upper Senonian Sponges from Misburg and Oberg in Hannover; 16 Hexactinellida, 6 Choristida, 35 Lithistida (with 16 n. gg. and 20 n. spp.) and 1 Monactinellid (n. g. et sp.); SCHRAMMEN (50) pp. 19–21.—Senonian sponges of Biewende near Wolfenbüttel, Prussia; WOLLEMAN (69).—Cretaceous of Lüneburg; WIEGERS (68) p. 248.—Cretaceous of Tölz in the Bavarian Alps, *Ventriculites*; IMKELLER (29 A) p. 27.—Cretaceous of Rugen, *Aphrocallistes* sp. described under the name *Hexagonaria*; DEECKE (17 A), cf. GEINITZ (23 A). A Silurian sponge (*Astylospongia præmorsa*) in the Stramberg strata; REMEŠ (46 A).—Upper Cretaceous: *Spongia plana* Phill. and *Hippalimus radiceformis* Phill.; BAGG (7) p. 360.

(c), (d). Vacant.

(e). Trias:—Triassic Pharetronidæ and “Syconidæ” from the Bakony, *Himatella*, *Oculospongia*, *Peronidella*, *Corynella*, *Myrmecidium* nom. nov. *Leiospongia*, *Celyphia*, *Steinmannia*, *Colospongia*, *Cryptocælia*, *Loczia*, n. g., *Oligocælia*, n. g., *Amblyisiphonella*, and “nov. genus et species,” in all 20 n. spp. of which 10 are described as new; VINASSA DE REGNY (61).—Trias of Mte. Presolana in Lombardy, *Colospongia*; MARIANI (40 A), p. 1253.

(iv) PALÆOZOIC.

(a), (b), (c). Vacant.

(d) Coal-Measures:—Coal-Measures of Ohio, *Sphenodictya cornigera*, n. g. et sp.; HERZER (27).

(e) Lower Carboniferous:—Lower Carboniferous Sponges in the American Museum of Natural History; WHITFIELD & HOVEY (67) pp.

358-361.—Carboniferous Limestone of Fife and Kinross, *Acanthosp. Ascodictyon*, *Hyalostelia*, and *Peronidella*; PEACH (43) pp. 220, 221, 246, 248.

(f) Devonian:—Upper Devonian Tuff-breccia, Prussia, *Receptac. neptuni*; DREVERMANN (20) pp. 182, 184, 186, 206.—Middle Devonian (Chemung Beds) of New York, *Nepheliospongia typica* N. *avocensis*, n. g. et spp.; CLARKE (11).—Sponges in the Helderberg, CLARKE (12) pp. 92 & 95.

(g) Silurian:—A Silurian Sponge (*Astylospongia præmorsa*) in Stramberg strata; REMÉŠ (46 A).—Silurian Sponges in Miocene of Island; STOLLEY (55).—Silurian of Lüneburg, WIEGERS (68) p. 247.

(h) Ordovician:—Trenton Formation of Manitoba, *Receptac. Ischadites*, *Pasceolus*, *Aulocopella* and *Trichospongia*; DOWLING (19).

(k) Cambrian:—Cambrian Sponges in Miocene of Sylt Is., STOLLEY (55).—Cambrian of Eastern Salt Range, *Cylindrites* sp.; RE (46).

(l) Vacant.

IV. SYSTEMATIC.

[A name of a species, followed only by a reference to an author's from the list of titles, is a record of occurrence pure and simple. locality (or horizon) can be found by looking up the reference in of section III, following the title in the list above (section I).]

A. PORIFERA, GENERAL.

Vacant.

B. CALCAREA.

(i) *HOMOCÆLA*.

Family CLATHRINIDÆ.

Ascandra angulata Lend. [= *Clathrina lacunosa* (Johnst.)]; ARNESEN p. 13; (6) p. 68.

Ascetta blanca (M. McL.) H., pp. 9 & 10; *A. coriacea* (Mont.) H., pp. 10 (6) pp. 67 & 68; *A. lamarcki* (H.) pp. 11 & 12; ARNESEN (5). *Leucosolenia lamarcki* (H.), from Antarctic Ocean, described; TOPSENT pp. 5, 9; TOPSENT (56) p. 1. *A. primordialis* H.; ARNESEN (5) p. & 13. (*Leucosolenia primordialis* (H.), var. *dictyoides* H., Strait Magellan; TOPSENT (60) pp. 3 and 9.

Ascortis clarkii and *A. fragilis*; KINGSLEY (31) p. 161. (*Ascan. fragilis* (H.); ARNESEN (5) p. 15; (6) pp. 68 & 69.

Leucosolenia cancellata Verrill; WHITEAVES (63) p. 11; KINGSLEY p. 161.

Family LEUCOSOLENIIDÆ.

Ascandra armata (H.), p. 13; *A. complicata* (Mont.) H., pp. 13 & *A. variabilis* H., pp. 15 & 16; *A. corallorrhiza* (H.), pp. 14 & ARNESEN (5); (6) pp. 68 & 69.

(ii) *HETEROCÆLA*.

Family SYCETTIDÆ.

- Sycon* seu *Sycandra*, *S. asperum* Lambe; WHITEAVES (63) p. 12. *S. ciliata* (F.) H., pp. 16 & 17; *S. ciliata*, var. *ovata* H., p. 17; *S. ciliata*, var. *lanceolata* H., p. 17; *S. coronata* (Ell. & Sol.), pp. 17 & 18; ARNESEN (5); (6) p. 70. *S. protectum* Lambe; WHITEAVES (63) p. 11. *S. raphanus* O. S., anatomy; KÜKENTHAL (34) pp. 42 & 43, fig. 34; ARNESEN (5) pp. 18 & 19; (6) pp. 69 & 70: from Straits of Magellan; TOPSENT (60) p. 9.
- S. raphanus*, var. *tergestina* H.; ARNESEN (5) p. 19. *S. villosa* H.; ARNESEN (5) p. 20; (6) p. 70.

Family GRANTIDÆ.

- Grantia arctica* (H.); ARNESEN (5) p. 20. *G. canadensis* Lambe; WHITEAVES (63) p. 12. *G. ciliata*; KINGSLEY (31) p. 161. *G. compressa* (F.); ARNESEN (5) pp. 21 & 22; (6) pp. 70 & 71. *G. compressa*, var. *pen-nigera* (H.), *polynorpha* (H.), and *rhopalodes* (H.); ARNESEN (5) p. 22. *G. coronata*; KINGSLEY (31) p. 161. *G. monstrosa* Breitf.; DAWSON (17) p. 192A. *G. utriculus* (O. S.); ARNESEN (5) pp. 22 & 23.
- Leucandra ananas* (Mont.); ARNESEN (5) pp. 25 & 26; (6) p. 71. *L. aspera* (O. S.); ARNESEN (5) pp. 26 & 27; (6) p. 72: minute structure of the spicules [see II, B, iv, b]; BÜTSCHLI (9) pp. 271-280. *L. caminus* H.; ARNESEN (5) p. 27; (6) p. 72. *L. cyathus*; KINGSLEY (31) p. 161. *L. echinus* (H.); ARNESEN (5) p. 27; (6) p. 72. *L. fistulosa* (Johnst.); ARNESEN (5) p. 27. *L. microrhaphis* (H.) Dendy, from Antarctic Ocean, described; TOPSENT (56) p. 1; (60) pp. 5, 10. *L. nivea* (Grant); ARNESEN (5) pp. 28 & 29; (6) p. 72.
- Leucyssa incrustans* H.; ARNESEN (5) p. 29; (6) p. 72.
- Ute glabra* O. S.; ARNESEN (5) pp. 23 & 24; (6) p. 71. *U. utriculus* O. S., vide sub *Grantia*.

Family HETEROPIDÆ.

- Heteropia rodgeri* Lambe; WHITEAVES (63) p. 12.

Family AMPHORISCIDÆ.

- Amphoriscus thompsoni* Lambe; WHITEAVES (63) p. 12.
- Ebnerella nitida*, n. sp., from Tromsø, Norway; ARNESEN (5) pp. 24 & 25, pl. i, figg. 1-3.
- Sphenophorina singularis* Breitf.; ARNESEN (5) p. 25.

Family PHARETRONIDÆ seu PHARETRONES.

(1) *Dialytinae*.

- Celyphia* Pom., affinities of the genus, pp. 12 & 13; +*C. submarginata* (Mnst.), from Trias of Jeruszálemhegy near Veszprém, p. 13, pl. i, fig. 14; VINASSA DE REGNY (61).
- Corynella* Z., characters and affinities of the genus, p. 8; +*C. rauffi*, n. sp., from Trias of Jeruszálemhegy near Veszprém, pp. 8 & 9, pl. ii, figg. 1-4, and figg. 1 & 2 in text; VINASSA DE REGNY (61).
- +*Elasmostoma consobrinum* d'Orb., JUKES-BROWNE & SCANES (30) p. 119.
- +*Himatella milleporata* (Mnst.), described, from Brachiopod-Conglomerate of Csérhát, near Veszprém; VINASSA DE REGNY (61) p. 6, pl. i, fig. 13, a & b.

Leiospongia d'Orb., characters of the genus, p. 11; +*L. hornigi*, n. sp. Trias of Jeruszálemhegy near Veszprém, p. 12, pl. ii, figg. 1 +*L. cf. radiformis* (Mnst.), from Trias near Veszprém, pp. 1 pl. ii, figg. 17-19; +*L. reticularis* (Mnst.), from Trias, near V. p. 11, pl. ii, figg. 7-10; +*L. sp. ind. aff. subcariosa* (Mnst.) from Jeruszálemhegy near Veszprém, p. 12, pl. ii, fig. 6; VINASSA DE REGNY (61).

Myrmecidium, nom. nov. [errore *Myrmecidinus*, COSSMANN in rev *Myrmecium* Goldf. non Latreille, characters of the genus, p. 10; +*cidium* (?) *hindei*, n. sp., from Trias of Jeruszálemhegy near V. p. 10, pl. i, figg. 9 & 10; VINASSA DE REGNY (61).

+*Oculospongia* (?) sp. ind., from Trias of Jeruszálemhegy near V. pp. 6 & 7, pl. i, fig. 11 a & b; VINASSA DE REGNY (61).

+*Peronidella*, n. sp. [sic], from Trias of Jeruszálemhegy near V. p. 7, pl. ii, fig. 5 a & b; +*P.*, sp. ind., from Trias of Jeruszálemhegy near Veszprém, p. 7, pl. i, fig. 12 a & b; +*P. loreti* Z., from Cserhát near Veszprém, pp. 7 & 8; VINASSA DE REGNY (61) *sparsa* Hinde; PEACH (43) pp. 221, 246.

+*Pharetrospongia strahani* Soll.; ROWE (48), p. 71.

(2) *Lithoninae*.

+*Porosphaera* sp., and +*P. globularis*; JUKES-BROWNE & SCANES (30), +*P. globularis* Phill.; NEWTON (41) p. 239; ROWE (48) pp. WIEGERS (68) p. 248; WOLLEMAN (60) p. 10. +*P. pileolus* ROWE (48) pp. 67, 72. +*P. urceolata* Phill.; JUKES-BRO SCANES (30) p. 119. +*P. woodwardi* Crtr.; ROWE (48) pp. 67,

HETEROCCELA INCERTÆ SEDIS (*Syconidae* auct. non Ha

+“Genus et species nov.” from Trias of Jeruszálemhegy near V. VINASSA DE REGNY (61), p. 17, pl. i, figg. 4 & 5.

Amblysiphonella Steinm., characters and affinities of the genus, +*A.*, n. sp. [sic], from Trias of Jeruszálemhegy near Veszprém & 21, pl. ii, figg. 11-13; +*A. lörentheyi*, n. sp., from Trias Veszprém, pp. 19 & 20, pl. iii, figg. 1-13, and fig. 7 in the VINASSA DE REGNY (61).

Barroisia, characters and affinities of the genus; VINASSA DE REGNY p. 19. +*B. faxensis*, n. sp., from Ural Limestone of Faxe, de with English diagnosis; RAVN (45) pp. 28-30, pl. i, figg. 4 & 5.

+*Colospongia dubia* (Mnst.), from Trias near Veszprém; VINASSA DE (61) p. 15, pl. ii, fig. 13 a-c: from Trias of Mte. Presolana, in Loc described; MARIANI (40A) p. 1253.

+*Cryptocalia* (?) cp. *zitteli* Steinm., from Trias of Jeruszálemhegy Veszprém; VINASSA DE REGNY (61) p. 15.

Loczia, n. g., allied to *Cryptocalia* Steinm., p. 16, for +*L. cryptoca* n. sp., from Trias of Jeruszálemhegy near Veszprém, pp. 16 & 1 figg. 6-8, and fig. 5 on p. 16; VINASSA DE REGNY (61).

Oligocalia, n. g., closely allied to *Barroisia*, resembling in some *Amblysiphonella* and *Sebargasia*, p. 17, for +*O. zitteli*, n. sp. Trias of Jeruszálemhegy near Veszprém, p. 18, pl. i, figg. 1- fig. 6 in the text; VINASSA DE REGNY (61).

Steinmannia Waag. & Wentz., characters and affinities of the genus +*S. semseyi*, n. sp., from Trias near Veszprém, p. 14, pl. i, figg and figg. 3 & 4 in the text; VINASSA DE REGNY (61).

+*Tremacystia orbigny* Hinde; JUKES-BROWNE & SCANES (30) p. 119

C. HEXACTINELLIDA.

(i) *LYSSACINA*.

Family EUPLECTELLIDÆ.

Euplectella Owen, summary of the organization and characters of the genus, pp. 37–57; key to the thirteen known species, p. 58; *E. aspergillum* Owen, its affinities, p. 83; *E. curvistellata*, n. sp., from southern coast of the Province of Satsma in Kyūshū, Japan, 100–142 m., pp. 217–219, 2 text-figg.; *E. imperialis* Ij., from Sagami Sea, etc., Japan, 365–1002 m., redescribed, p. 24 and pp. 59–85, pls. i & ii; *E. marshalli* Ij., from Sagami Sea, etc., 133–292 m., redescribed, p. 24, and pp. 86–201, pls. iii–v: affinities, p. 200; *E. owenii* Herkl. and Marsh., from Kyūshū or from the neighbourhood of that island, particularly the waters of the Korean Channel to the North West of it, redescribed, pp. 202–216, pl. vi; *E. regulis* F. E. S., its affinities, p. 83; IJIMA (29).

Hyalodendron navaliūm Moore, a synonym of *Walteria leuckarti*; the creation of a new genus to receive the species is inadmissible; IJIMA (29) p. 29.

Malacosaccus floricomatus, n. sp., from east of the Azores, 5005 meters depth, a species exceptional amongst *Euplectellidæ*, both as regards form, and in details of spiculation; TOPSENT (58) pp. 448–455.

Regadrella O. S.; genus diagnosed, its characters and affinities discussed, and key to the three species given, pp. 220–223; *R. decora* F. E. S., a synonym of *R. okinoseana* Ij., pp. 248–250; *R. komeyamai*, n. sp., from Sagami Sea, locality unknown, pp. 252–264, pl. ix & x, figg. 5–17; *R. okinoseana* Ij., from the Sagami Sea, 358 to 832 m., redescribed: includes *R. decora* F. E. S., 1900, from Indian Ocean, pp. 223–251, pls. vii & viii; *R. phœnix* O. S., from coast of Chile, 3200 m., redescribed: includes *Trichaptella elegans* Filhol and *Rhabdodictyum delicatum* Topsent, pp. 265–277, pl. x, figg. 18–27, pl. xi; IJIMA (29).

Rhabdodictyum delicatum Topsent, a synonym of *Regadrella phœnix*; IJIMA (29) p. 265.

Tegeria pulchra F. E. S., notes on the coronal wreath; IJIMA (29) p. 253.

Trichaptella elegans Filhol, a synonym of *Regadrella phœnix*; IJIMA (29) p. 265.

Walteria F. E. S., diagnosis of the genus and differential characters of the two species, *W. leuckarti* Ij. and *W. flemmingi* F. E. S., p. 278; *W. leuckarti* Ij., from Sagami Sea, 500–1000 m., redescribed: includes *Hyalodendron navaliūm* Moore, pp. 279–293, pls. xii & xiii; IJIMA (29).

Family ASCONEMATIDÆ.

Caulophacus sp., perhaps *C. elegans* F. E. S., from Antarctic, described; TOPSENT (60) pp. 31 & 32 and p. 7, pl. i, fig. 6: TOPSENT (56) p. 4.

Family ROSSELLIDÆ.

Acanthascus cactus F. E. S., p. 24; IJIMA (29).

Bathydorus spinosus F. E. S., from Antarctic; TOPSENT (60) p. 36 and p. 7, pl. i, fig. 1: TOPSENT (56) p. 6.

Charinoplectella cavernosa Ij.; IJIMA (29), p. 25.

Leucopsacus orthodocus Ij., development of the larvæ; IJIMA (29), pp. 162 & 163, 187 & 188, 193 footnote, 246 footnote.

Rhabdocalyptus australis, n. sp., from Antarctic; TOPSENT (56) p. description; TOPSENT (60) pp. 37 & 38 and p. 7, pl. ii, figg. 5 iv, figg. 14-21, pl. v, fig. 1. *R. capillatus* and *R. glaber* Ij.; IJIMA p. 25. *R. lophodigitatus*, n. sp., from 140 and 154 fathoms, 70 m of Lion's Head, Cape Colony; KIRKPATRICK (32). *R. victor* Ij. (29) p. 24.

Rossella nuda, n. sp., from Antarctic; TOPSENT (56) pp. 4 & description; TOPSENT (60) pp. 32-33 and p. 7, pl. i, fig. 7, pl. 8-13. *R. racovitzae*, n. sp., from Antarctic; TOPSENT (56) pp. full description; TOPSENT (60) pp. 33-35 and p. 7, pl. i, fig. 5 figg. 1-7.

Vitrolula fertile Ij., development of the larvæ; IJIMA (29) pp. 162 187 & 188, 193 footnote, 246 footnote.

Family HYALONEMATIDÆ.

Hyalonema affine Marsh., structure of the chambers; IJIMA (29) footnote. *H. longissimum*; KINGSLEY (31) p. 161. *H. masoni* mensal with *Richardina spongicola*; ALCOCK (1) p. 38. *H. r.* Ij., vide sub *Sericolophus*.

†*Pyrtonema*, sp.; STOLLEY (55) pp. 24 & 29.

Sericolophus reflexus Ij., structure of the chambers; IJIMA (29) footnote.

Family DICTYOSPONGIDÆ.

†*Calathospongia carceralis* H. & C., †*C. redfieldi* Hall, and †*C. s.* Hall; WHITFIELD & HOVEY (67) p. 358.

†*Dictyospongia cylindrica* Whitf.; WHITFIELD & HOVEY (67) p. 358.

†*Ectenodictya burlingtonensis*, vide *Lyrodietya*.

†*Lyrodietya burlingtonensis* Hall; WHITFIELD & HOVEY (67) p. 360.

†*Phragmodictya catilliformis* Whitf.; WHITFIELD & HOVEY (67) p. 3

†*Physospongia dawsoni* Whitf., and †*P. multibursaria* H. & C.; FIELD & HOVEY (67) p. 360.

†*Thammodictya newberryi* Hall; WHITFIELD & HOVEY (67) p. 360.

†*Uphantænia dawsoni*, vide *Physospongia*.

Family RECEPTACULITIDÆ.

†*Ischadites iowensis* Owen; DOWLING (19) pp. 45 F, 48 F, 78 F.

†*Paseolus gregarius* Billings; DOWLING (19) pp. 38 F, 48 F, 69 F, 76 F, 78 F.

†*Receptaculites neptuni*, Defr.; DREVERMANN (20) pp. 182, 184, 18 †*R. oweni* Hall; DOWLING (19) pp. 38 F, 48 F, 64 F, 70 F, 72 F 81 F.

Family POLLAKIDÆ.

†*Hyalostelia parallela* McCoy; PEACH (43) pp. 221, 244, 246, 248.

(ii) DICTYONINA.

Family FARREIDÆ.

Farrea occa (Bwk.), Ctr.; TOPSENT (56) p. 7; TOPSENT (60) p. p. 38. *F. weltneri*, n. sp., from the Azores; TOPSENT (58) p. 46

Family EURETIDÆ.

- Eurete alicei*, n. sp., from the Azores; TOPSENT (58) pp. 462-466. *E. gerlachei*, n. sp., from Antarctic; TOPSENT (56) p. 7: full description; TOPSENT (60) pp. 38-40, pl. ii, fig. 4, pl. v, figg. 2-9.
- Periphragella lusitanica* Tops., is nothing but a basilar fragment of a *Chonelasma schulzei* Tops.; TOPSENT (58), p. 459.
- +*Stauronema carteri* Soll.; JUKES-BROWNE & SCANES (30) pp. 102 & 119.
- Tremadictyon* Z., diagnosis and synonymy of genus, p. 287; +*T.* sp., described, pp. 287 & 288, pl. xx, fig. 7, pl. xxiii, figg. 4-6; MALFATTI (40).
- Terrucocalia* Etall., diagnosis and synonymy of genus, p. 286; +*V.* sp., described, p. 287, pl. xxxiii, figg. 1, 2, 9; MALFATTI (40).

Family CRATICULARIDÆ.

- Craticularia* Z., diagnosis and synonymy of genus, p. 281; +*C.*, n. sp., Pliocene of Liguria, p. 299, pl. xxi, figg. 7 & 8, pl. xxii, fig. 2; +*C. emiliana*, n. sp., Middle Miocene of Italy, p. 284, pl. xxi, figg. 1-3 & 9-10, pl. xxii, fig. 10; MALFATTI (40). +*C. fittoni* Mant.; ROWE (48) p. 71.
- +*C. globularis*, n. sp., Middle Miocene of Italy, p. 284, pl. xxi, fig. 5; +*C. manzonii*, n. sp., Middle Miocene of Italy, p. 284, pl. xx, figg. 1-6, pl. xxi, fig. 13, pl. xxii, figg. 1 & 4; +*C. patula* Pom., described, pp. 285 & 286, pl. xxi, figg. 6, 11 & 12, pl. xxii, figg. 7-9; +*C. cf. radicata* Počta, described, p. 285, pl. xxi, fig. 4; +*C. razorei*, n. sp., Pliocene of Liguria, pp. 298 & 299, pl. xx, figg. 8-10, pl. xxii, fig. 3; MALFATTI (40).

Family MELLITIONIDÆ.

- +*Aphrocallistes* sp., described under the name *Hexagonaria*; DEECKE (17 A): cp. GEINITZ (23 A): JUKES-BROWNE & SCANES (30) p. 119: ROWE (48) pp. 67 & 71. +*A. alveolites* (Roem.); SCHRAMMEN (50) p. 19: WOLLEMAN (69) p. 8. *A. azoricus*, n. sp., from the Azores, 568, 597, and 927 meters; TOPSENT (58) pp. 455-458.
- +*Hexagonaria* sp. from Cretaceous of Rugen; DEECKE (17 A): is an *Aphrocallistes*; GEINITZ (23 A).

Family COSCINOPORIDÆ.

- Chonelasma*, sp.; TOPSENT (56) p. 7: described; TOPSENT (60) p. 40. *C. calyx* F. E. S.; IJIMA (29) pp. 25 & 31, text-fig. *C. yimai*, n. sp., from the Azores, pp. 460-462; *C. schulzei* Tops., redescribed, includes *Periphragella lusitanica* Tops., pp. 458-460; TOPSENT (58).
- +*Coscinopora infundibuliformis* Goldf.; ROWE (48) p. 71: SCHRAMMEN (50) p. 19: WOLLEMAN (69) p. 7.
- +*Guettardia stellata* Mich.; ROWE (48) p. 71.
- +*Leptophragma murchisoni* Goldf.; ROWE (48) pp. 67 & 71: WOLLEMAN (69) p. 7.
- +*Pleurostoma expansum* Roem. and +*P. radiatum* Roem.; SCHRAMMEN (50) p. 19.

Family ?

- Uncinatera*, n. g., type of a third subtribe of *Uncinataria* with neither scopulæ nor clavulæ, for *U. plicata*, n. sp., from the Antarctic; TOPSENT (56) pp. 7 & 8: diagnosis of the genus, and full description of the species; TOPSENT (60) pp. 40-43 and p. 7, pl. ii, figg. 7 & 10-12, pl. vi, figg. 1-10.

Family MEANDROSPONGIDÆ.

- †*Becksia sæckelandi* Schlüt.; SCHRAMMEN (50) p. 19: WOLLEMAN p. 8.
 †*Camerospongia fungiformis* Gf.; SCHRAMMEN (50) p. 19.
 †*Plocoscyphia*, sp.; JUKES-BROWNE & SCANES (30) p. 119. †*P. α* T. Smith; ROWE (48) pp. 67 & 71. †*P. fenestrata* Smith; BROWNE & SCANES (30) p. 119. †*P. labyrinthica* Rss.; SCHRAMMEN (50) p. 19.
 †*Tremabolites megastoma* (Roem.); SCHRAMMEN (50) p. 19.

Family STAURODERMIDÆ.

- Zittelospongia*, n. g. of *Staurodermidæ* for †*Z. meandriiformis*, Middle Miocene of Italy; MALFATTI (40), pp. 288 & 289, f. figg. 1 & 2, 5-8.

Family CALLODICTYONIDÆ.

- †*Callodictyon infundibulum* Z.; SCHRAMMEN (50) p. 19.
 †*Marshallia alternans* (Roem.), and †*M. tortuosa* (Roem.); SCHRAMMEN (50) p. 19.
 †*Pleurope lacunosa* (Roem.); SCHRAMMEN (50) p. 19.

Family CÆLOPTYCHIDÆ.

- †*Cæloptychium*, sp.; WOLLEMAN (69) p. 10. †*C. agaricoides* WOLLEMAN (69) p. 9: SCHRAMMEN (50) p. 19. †*C. decem* (Roem.); SCHRAMMEN (50) p. 19. †*C. lobatum* Goldf.; WOLL (69) p. 9. †*C. sulciferum* Roem.; SCHRAMMEN (50) p. 19.

Family VENTRICULITIDÆ.

- †*Lepidospongia rugosa* Schlüt.; SCHRAMMEN (50) p. 19.
 †*Polyblastidium luxurians* Z.; SCHRAMMEN (50) p. 19.
 †*Rhizopoterion cervicorne* (Gf.); SCHRAMMEN (50) p. 19.
 †*Sporadoscina dechenii* (Gf.), †*S. micrommata* (Roem.), and †*S.* (Roem.); SCHRAMMEN (50) p. 19.
 †*Ventriculites convolutus* Hinde, †*V. cribrus* Phill., †*V. decurrens* T. Smith, †*V. impressus* T. Smith, †*V. mammillaris* T. Smith; ROWE (48) pp. 67, 71. †*V. radiatus* Mant.; ROWE (48) pp. 67, 71: SCHRAMMEN (50) p. 19. †*V. striatus* T. Sm.; IMKELLER (29 A), p. 27: WOLL (69) p. 8.

Family NEPHELIOSPONGIDÆ.

- Nepheliospongia*, n. fam. of Dictyonina; CLARKE (11) p. 189.
Nepheliospongia, n. g., type †*N. typica*, n. sp., from Chemung bed, York, pp. 189 & 190, pl. x, figg. 1-3; †*N. avocensis*, n. sp. Chemung beds, p. 190, pl. x, fig. 4, pl. ii, fig. i; CLARKE (11).

HEXACTINELLIDA INCERTÆ SEDIS.

- †*Acanthospongia smithi* Young; PEACH (43) pp. 220-244.

D. DEMOSPONGIÆ.

(i) *TETRAxonIDA*.

(a) Order CARNOSA.

Dercitus plicatus (O. S.) Lend., perhaps includes *D. simplex* (Crtr.); TOPSENT (59) pp. 343 & 344.

Placina trilopha F. E. S., from Antarctic, described; TOPSENT (60) pp. 30 & 31 and p. 7, pl. iii, fig. 1; TOPSENT (56) p. 4.

Placortis simplex F. E. S., redescribed; TOPSENT (59) p. 344.

(b) Order TETRACTINELLIDA.

(1) Sub-order CHORISTIDA.

Tribe SIGMATOPHORA.

Family TETILLIDÆ.

Craniella cranium (Müller); WHITEAVES (63) p. 12.

Tribe ASTROPHORA.

Family THENEIDÆ.

Thenia muricata (Brok.); WHITEAVES (63) p. 13.

Family PACHASTRELLIDÆ.

Pachastrella monilifera O. S., includes *P. abyssi* O. S.; TOPSENT (59) p. 343. †*P. primæva* Z. should be given a new generic name; SCHRAMMEN (50) p. 18 footnote and p. 19.

Family STELLETTIDÆ.

Stolleya Schrm., remarks on the systematic position of the genus, p. 17 footnote; †*S. microtulipa* Schrm. and †*S. ornatissima* Schrm., p. 19; SCHRAMMEN (50).

†*Tethyopsis steinmanni* Z., p. 21: its systematic position, p. 17 footnote; SCHRAMMEN (50).

Family GEODIDÆ.

Cydonium gigas, ferments of; COTTE (13).

Erylus discophorus (O. S.) Soll., from La Calle, Algeria, redescribed, pp. 338-341, pl. xiii, fig. 7, pl. xiv, fig. 2; *E. euastrium* (O. S.), its distinctness from *E. stellifer*, p. 342; *E. stellifer* Tops., redescribed, pp. 342 & 343, pl. xiii, fig. 1: TOPSENT (59).

Geodia canaliculata O. S. vide *Isops*. †*G. cretacea* Schrm.; SCHRAMMEN (50) p. 19. *G. placenta* O. S., minute structure of the spicules [see II, B, iv, b]; BUTSCHLI (9) pp. 236-271.

Isops canaliculata (O. S.), from La Calle, redescribed; TOPSENT (59) pp. 334-338, pl. xiv, fig. 5.

Tribe OPHISCLEROPHORA.

Tribe *Ophisclerophora* suggested for the family *Raphididae* Schrm Choristida; SCHRAMMEN (50) p. 18 footnote.

Family RAPHDIDÆ.

- †*Cephaloraphidites cavernosus* Schrm., †*C. milleporatus* Schrm.; SCHRAMMEN (50) p. 19.
 †*Ophiraphidites cylindricus* Schrm., †*O. infundibuliformis* Schrm. †*tuberosus* Schrm.; SCHRAMMEN (50) p. 19.

(2) LITHISTIDA.

Family TETRACLADIDÆ.

Tribe *Tetracladidae*, subdivided into:—(1) subtribe *Gymnod.* n. subtr., pp. 3 & 4, to include *Phymatellidae*, n. fam., p. 4, *dermidae*, n. fam., p. 5, and *Kaliapsidae*, n. fam., p. 7: (2) s *Phanerodermidae*, n. subtr., pp. 3 & 9, comprising *Calym.* n. fam., p. 9, *Polyjereidae*, and *Astrocladidae*, n. fam., SCHRAMMEN (50).

- Acrochordonia*, n. g. of *Discodermidae*, for †*A. ramosa*, n. sp. Quadrata-chalk, Oberg; SCHRAMMEN (50) pp. 6, 7, pl. i, fig. 1; fig. 1; named by error †*A. dichotoma* Schrm. on p. 20.
 †*Astrocladia subramosa* (Roem.); SCHRAMMEN (50) p. 20. †*A. v.* (A. Roem.); WOLLEMAN (69) p. 7.
 †*Aulaxinia sulcifera* (A. Roem.); SCHRAMMEN (50) p. 20: WOLLEMAN p. 6.
 ††*Aulocopella cepa* Rff.; STOLLEY (55) p. 24. †*A. winnipegensis* DOWLING (19) pp. 48 F, 75 F.
 †*Aulocopium aurantium* Osw.; STOLLEY (55) p. 24, WIEGERS (68) †*A. cylindraceum* Roem.; STOLLEY (55) p. 24.
 †*Callopegma acule* Z. and *C. schlenbachi* Z.; SCHRAMMEN (50) p. 2
Craterella, n. g. of *Phymatellidae*, for †*C. tuberosa*, n. sp., from Quadrata-chalk of Misburg and Oberg; SCHRAMMEN (50) pp. 4, 5 & 20, fig. 2.
Discodermia Boc, diagnosis, p. 5; †*D. antiqua*, n. sp., from Quadrata-chalk of Oberg and Mucronata-chalk of Misburg, pp. 5, 6 & 20, figg. 2-4, pl. iv, fig. 3; SCHRAMMEN (50).
Microdendron, n. g. of *Astrocladidae*, allied to *Astrocladia* Z., fr *ramulosum*, n. sp., from Mucronata-chalk, Misburg; SCHRAMMEN pp. 10 & 20, pl. ii, fig. 3, pl. iv, fig. 7.
Pachycalymma, n. g. of *Calymmatidae*, allied to *Calymmatina* †*P. subglobosa*, n. sp., from Quadrata-chalk of Oberg and Misburg; SCHRAMMEN (50) pp. 9, 10 & 20, pl. i, fig. 1, pl. iii, fig. 1, pl. iv, fig. 1.
Phymaraphinia, n. g. of *Kaliapsidae*, for †*P. infundibuliformis*, from Quadrata-chalk of Misburg and Oberg, and Mucronata-chalk of Misburg; SCHRAMMEN (50) pp. 8 & 9, pl. i, figg. 6 & 7, pl. iv, fig. 1.
 †*Phymatella bulbosa* Z.; SCHRAMMEN (50) p. 20: WOLLEMAN (69) †*P. tuberosa* (Qu.) and †*P. tubulosa* (Roem.); SCHRAMMEN (50) p. 20.
 †*Plinthosella compacta* Hinde; ROWE (48) p. 71. †*P. squamata* SCHRAMMEN (50) p. 20: described; RAVN (45) pp. 24-28, pl. i, fig. 1.
Prokaliapsis, n. g. of *Kaliapsidae*, for †*P. cylindrica*, n. sp., from Quadrata-chalk of Oberg and Mucronata-chalk of Misburg, pp. 7, 8 & 20, fig. 5, pl. iv, fig. 1; †*P. cretacea*, n. sp., from Quadrata-chalk, Misburg; SCHRAMMEN (50).

- Pseudoplocoscyphia*, n. g. of *Phymatellidæ*, for †*P. mæandrina*, n. sp., from Mucronata-chalk of Misburg; SCHRAMMEN (50) pp. 4 & 20, pl. ii, fig. i, pl. iv, fig. 2.
- †*Rhagadinia rimosa* (Roem.); SCHRAMMEN (50) p. 20.
- †*Siphonia coronata* Griepankerl; WOLLEMAN (69) p. 6. †*S. excavata* Gf.; WIEGERS (68) p. 248. †*S. konigi* Mant.; ROWE (48) p. 71. †*S. tulipa* Z.; JUKES-BROWNE & SCANES (30) p. 119.
- Sollasella*, n. g. of *Discodermidæ*, for †*S. jereceformis*, n. sp., from Mucronata-chalk of Misburg; SCHRAMMEN (50) pp. 6 & 20, pl. ii, fig. 4, pl. iv, fig. 6.
- †*Turonia constricta* Mich., †*T. induta* Z. and †*T. variabilis* Mich.; SCHRAMMEN (50) p. 20.

Family PLEROMIDÆ seu MEGAMORINIDÆ.

Including Tribe *Rhabdomorinidæ* Rff., subdivided into *Carterellidæ* n. fam., p. 12, and *Dorydermidæ*, n. fam., p. 11; SCHRAMMEN (50).

- Amphilectella*, n. g. of *Dorydermidæ*, for †*A. piriformis*, n. sp., from Quadrata- and Mucronata-chalk, Misburg; SCHRAMMEN (50) pp. 13 & 20, pl. iii, fig. 3.
- Asteroderma*, n. g. of *Dorydermidæ*, p. 13; type †*A. expansa*, n. sp., from the Mucronata-chalk of Misburg, pp. 14 & 20, pl. iii, fig. 4, pl. v, fig. 4; †*A. conica*, n. sp., from the Quadrata-chalk of Oberg, pp. 14 & 20, pl. i, fig. 9; SCHRAMMEN (50).
- †*Carterella spiculigera* (Roem.); SCHRAMMEN (50) p. 20.
- †*Doryderma benettii* Hinde; JUKES-BROWNE & SCANES (30) p. 119. †*D. cylindrica* Z.; SCHRAMMEN (50) p. 20; WOLLEMAN (69) p. 6. †*D. dichotoma* (Roem.); SCHRAMMEN (50) p. 20. †*D. ramosum* Mant.; ROWE (48) p. 71; WOLLEMAN (69) p. 5.
- †*Heterostinia obliqua* Benett; ROWE (48) p. 71.
- †*Nematiniton* sp.; JUKES-BROWNE & SCANES (30) p. 119.
- Pachycythron*, n. g. of *Carterellidæ*, allied to *Carterella* Z. and *Isoraphinia* Z., for †*P. giganteum*, n. sp., from the Quadrata-chalk of Misburg and Oberg, and the Mucronata-chalk of Misburg; SCHRAMMEN (50) pp. 12 & 20, pl. iii, fig. 2, pl. v, fig. 3.
- †*Pachypoterion* sp.; JUKES-BROWNE & SCANES (30) p. 119.

Family AZORICIDÆ.

Family *Azoracidæ* Sollas, diagnosis; SCHRAMMEN (50) p. 16.

- †*Amphithelion macrommata* (Roem.) and †*A. tenue* (Roem.); SCHRAMMEN (50) p. 21. †Cf. *A. miliaris* (Rss.); WOLLEMAN (69) p. 5.
- †*Chonella auriformis* (Roem.) and †*C. tenuis* (Roem.); SCHRAMMEN (50) p. 21.
- †*Jereica multiformis* (Brunn.) and †*J. polystoma* (Roem.); SCHRAMMEN (50) p. 21.
- Leiochonia*, n. g. of *Azoracidæ*, for †*L. cryptoporosa*, n. sp., from the Quadrata-chalk of Oberg and Misburg, and the Mucronata-chalk of Misburg; SCHRAMMEN (50) pp. 16 & 21, pl. v, fig. 6.
- Polypora*, n. g. [non McCoy, 1845], for †*P. reticulata*, n. sp., from Quadrata-chalk of Misburg; SCHRAMMEN (50) pp. 17 & 21, pl. ii, fig. 6, pl. v, fig. 7.
- †*Seliscothron explanatum* (Roem.); SCHRAMMEN (50) p. 21. †Cf. *S. giganteus* (A. Roem.); WOLLEMAN (69) p. 3. †*S. mantelli* (Gf.); SCHRAMMEN (50) p. 21. †*S. marginatus* (A. Roem.) and †*S. roemeri* (Pom.); WOLLEMAN (69) p. 4.

- +*Verruculina aurita* Roem.; SCHRAMMEN (50) p. 21: WOLLEM p. 5. +*V. marginata* Phill.; SCHRAMMEN (50) p. 21: WOLLEM p. 4.

Family ANOMOCLADIDÆ.

- Including Tribes *Anomocladinidæ* and *Eutaricladinidæ* Rauff, and *Neohindiadæ*, n. fam. of *Eutaricladinidæ*; SCHRAMMEN (50) p. 247.
 +*Astylospongia præmorsa* (Gf.); REMEŠ (46A): STOLLEY (55) pp. 247 & 248. WIEGERS (68) p. 247.
 +*Carpospongia castanea* Rff. and +*C. globosa* Eichw.; STOLLEY (55) p. 24.
 +*Caryospongia diadema* Rff., +*C. diadema* var. *gottlandica* Schrammen (55) p. 24.
 +*C. juglans* Rff.; STOLLEY (55) p. 24.
 +*Hindia fibrosa*; CLARKE (12) pp. 92 & 95. +*H. sphaeroidatus* STOLLEY (55) pp. 24 & 28.
Neohindia, n. g. of *Neohindiadæ*, for +*N. cylindrica*, n. sp., 1 Quadrata-chalk of Misburg and Oberg; SCHRAMMEN (50) pp. 24 & 28. pl. ii, fig. 5, pl. v, fig. 2.

Family CORALLISTIDÆ.

- Pseudorhizomorinidæ*, n. tr., pp. 3 & 14, for family *Corallistidæ* diagnosed; SCHRAMMEN (50) p. 14.
 +*Pachinion scriptum* (Roem.); SCHRAMMEN (50) p. 20.
Procorallistes, n. g. of *Corallistidæ*, for +*P. polymorphus*, n. sp., 1 Quadrata-chalk of Oberg and Misburg and the Mucronata-Misburg, pp. 14, 15 & 20, pl. i, fig. 10, pl. v, fig. 8; +*P. tuberosus* from the Quadrata-chalk of Oberg, pp. 15, 20, pl. i, fig. 11: SCHRAMMEN (50).

Family RHIZOMORINIDÆ.

- Including Family *Chenendoporidæ* and Family *Megarhizidæ*, p. 15; SCHRAMMEN (50).
 +*Chenendopora*, sp., and +*C. callodictya* (?) Zitt.; JUKES-BROWNE & (30) p. 119. +*C. fungiformis* LAMX.; SCHRAMMEN (50) p. 119. *micHELINI* Hinde; JUKES-BROWNE & SCANES (30) p. 119.
Cnemidiastrum, diagnosis and synonymy of genus, p. 291; +*C.*, scribed, p. 291, pl. xxiii, figg. 7 & 8: Malfatti (40).
Donatispongia, n. g. of *Rhizomorina*, for +*D. patellaris*, n. sp., Pli Liguria; Malfatti (40) pp. 299-301, pl. xxiii, figg. 10 & 11, fig. 9, pl. xxv, figg. 1a & b, 2d.
 +*Hippalimus radiceformis* Phill.; BAGG (7) p. 260.
Hyalotragos, diagnosis and synonymy of genus, p. 290; +*H.*, sp., de p. 290, pl. xxi, fig. 14, pl. xxiii, fig. 3, pl. xxiv, figg. 3 & 4: M (40).
Megarhiza, n. g. of *Megarhizidæ*, for +*M. dubia*, n. sp., from Q chalk, Misburg; SCHRAMMEN (50) pp. 15, 16 & 21, pl. v, fig. 5.
 +*Scytalia annulata* (Roem.); SCHRAMMEN (50) p. 21: WOLLEM p. 5. +*S. radiceformis* Phill. and +*S. turbinata* (Roem.); SCHRAMMEN (50) p. 21.
 +*Spongia plana* Phill.; BAGG (7) p. 260.
 +*Stichophyma tumidum* Hinde; ROWE (48) p. 71.

(ii) *MONAXONIDA*.

(a) Order HADROMERINA.

1. Sub-order ACICULINA.

Family COPPATIIDÆ.

Topsentia glabra (Tops.) Berg, redescribed; TOPSENT (59) pp. 347 & 348, pl. xiv, fig. 6.

Family TETHYIDÆ.

Tethya hispida; KINGSLEY (31) p. 161. *T. lyncurium* Johnst., minute structure of the spicules [see II, B, iv, b]; BÜTSCHLI (9) pp. 236-271: ferments of; COTTE (13). *T. prox. lyncurium*, development of the spicules; MAAS (37): development of the buds; MAAS (38).

Family STYLOCORDYLIDÆ.

Stylocordyla borealis (Loven.); WHITEAVES (63) p. 13.

2. Sub-order CLAVULINA.

Family CLIONIDÆ.

†*Cliona*, sp., Pliocene of Liguria; ROVERETO (47) pp. 233 & 234. *C. celata* Grant, includes *C. angulata* Hanc.; TOPSENT (59) pp. 345 & 346: WHITEAVES (63) p. 13. †*C. cretacea* Portl.; ROWE (48) p. 71. *C. sulphurea*; KINGSLEY (31) p. 161: habits; GRABAU (24) p. 339. *C. viridis* (O. S.) Gray, perhaps includes *Hymeniacion angulata* Bwk.; TOPSENT (59) p. 345.

†*Thoosa sabatia*, n. sp., from Lower Pliocene of Savona, Liguria; ROVERETO (47) pp. 231-233, fig. 5.

Family SPIRASTRELLIDÆ.

Hymedesmia bistellata (O. S.) Tops.; TOPSENT (59) p. 346.

Family POLYMASTIDÆ.

Polymastia mamillaris (Müller); WHITEAVES (63) p. 13. *P. robusta* Bwk.; KINGSLEY (31) p. 161: WHITEAVES (63) p. 13.

Quanillina brevis (Bwk.); WHITEAVES (63) p. 14.

Tentorium semisuberites (O. S.); WHITEAVES (63) p. 14.

Trichostemma hemisphaericum M. Sars; WHITEAVES (63) p. 14.

Family SUBERITIDÆ.

Laxosuberites rugosus (O. S.) Tops.; TOPSENT (59) p. 347.

Prosuberites longispina Tops.; TOPSENT (59) pp. 346 & 347.

Suberites antarcticus Crtr., described; TOPSENT (60) p. 29 and p. 6: TOPSENT (56) p. 4. *S. domuncula*, ferments of; COTTE (13). *S. ficus* (Johnst.), *S. hispidus* (Bwk.) and *S. montalbidus* Crtr.; WHITEAVES (63) p. 14.

(b) Order HALICHONDRINA.

Family HAPLOSCLERIDÆ.

Sub-family CHALININÆ.

Acervochalina finitima (O. S.) Ridley, vide *Chalina*.

Arenochalina mirabilis Lend., description of type specimens cor.
WHITELEGGE (64) pp. 65, 76, pl. x, fig. 7: WHITELEGGE (65) |
& 213.

Cacochalina globosa Lend., vide *Chalina*.

Ceraochalina finitima (O. S.) Lend., vide *Chalina*. *C. multiform-
dura* Lend., the type-specimen is identical in every characte
Thalassodendron viminalis Lend.; WHITELEGGE (65) p. 214.

Chalina cylindrica (Lend.), p. 73; *C. finitima* O. S., described, pp. 75
C. globosa (Lend.), described, pp. 71, 72 & 117, pl. x, fig. 4; *C. li-
n. sp.*, from Tuggerah Beach, N. S. Wales, p. 74, pl. x, fig. 6: V
LEGGE (64). *C. oculata* Pall.; KINGSLEY (31) p. 161: WHITEAV
p. 15. *C. palmata* (Lam.), described, synonym *Cladochalina*
Lend., p. 72; *C. ? spiculifera*, n. sp., from Tuggerah Beach,
Wales, pp. 73 & 74, pl. x, fig. 5: WHITELEGGE (64).

Chalinissa communis Lend., vide *Pachychalina*.

Chalinula renieroides O. S., vide *Reniera simulans*.

Cladochalina euplex Lend., vide *Chalina palmata*.

Dactylochalina cylindrica Lend., vide *Chalina*.

Pachychalina aurantiaca Lend., described, pp. 69, 117; *P. con-
(Lend.)*, from Tuggerah Beach, N. S. Wales, described, pp. 70 &
punctata R. & D., from Tuggerah Beach, N. S. Wales, des-
synonym *Plachochalina pedunculata*, var. *dura* Lend., pp. 69
WHITELEGGE (64). *P. rustica* O. S., redescribed; TOPSENT (59) |
& 358, pl. xii, fig. 4.

Plachochalina pedunculata, var. *dura* Lend., vide *Pachychalina pu-
R. & D.*

Patuloscula procumbens, var. *flabelliformis* Crtr., vide *Siphonochalina*
Phylosophina intermedia Lend., vide *Siphonochalina*.

Siphonochalina intermedia R. & D., described, p. 75; *S. procumben-
flabelliformis* (Crtr.), p. 75; *S. stalagmites* Lend., described, pp
76; WHITELEGGE (64). *S. stolonifera*, n. sp., from Bermuda, al
S. papyracea Schum.; WHITFIELD (66) pp. 47 & 48, pls. i-iii.

Sub-family RENIERINÆ.

Amorphina megalorhaphis Crtr., vide *Halichondria panicea*.

Eumastia sitiens O. S.; WHITEAVES (63) p. 15.

Gellius angulatus (Bwk.) R. & D., redescribed; TOPSENT (59) p
G. arcoferus VOSM.; WHITEAVES (63) p. 16. *G. bidens*, n. sp.,
Antarctic; TOPSENT (56) p. 2: full description; TOPSENT (60)
& 15 and p. 6, pl. ii, fig. 8, pl. iii, fig. 7. *G. flagellifer* R. & I
G. laurentinus Lambe; WHITEAVES (63) p. 16. *G. rudis*, n. sp.
Antarctic; TOPSENT (56) p. 2: full description; TOPSENT (60)
pl. i, fig. 9, pl. iii, fig. 4.

Halichondria condensata Bwk., vide *Reniera simulans*. *H. panicea*
Johnst., from Antarctic Ocean, includes *Amorphina megalor-
Crtr.*; TOPSENT (60) pp. 10 & 11: TOPSENT (56) p. 1: KINGSLEY
p. 161: WHITEAVES (63) p. 15: WHITELEGGE (64) p. 68. *H.*
Lend., vide *Rhaphisia*.

Isodictya dichotoma Bwk. and *I. ingalli* Bwk., vide *Reniera sim-
I. infundibuliformis* and *I. lobata*; KINGSLEY (31) p. 161.

- Petrosia variabilis* R., from Antarctic, described; TOPSENT (60) p. 6 and pp. 11 & 12, pl. ii, fig. 9: TOPSENT (56) p. 1.
- Reniera altera*, n. sp., from Antarctic; TOPSENT (56) p. 2: full description; TOPSENT (60) p. 13, pl. iii, fig. 12. *R. cinerea* (Grant), var. *porosa*, n. var., from Straits of Magellan; TOPSENT (60) p. 12, pl. ii, fig. 2, pl. iii, fig. 2. *R. corticata*, n. sp., which "would fall naturally into the genus *Pellina* Schmidt," from Tuggerah Beach, N. S. Wales; WHITELEGGE (64) p. 68, pl. x, fig. 2. *R. dancoi*, n. sp., from Antarctic; TOPSENT (56) pp. 1 & 2: full description; TOPSENT (60) pp. 12 & 13, pl. ii, fig. 1, pl. iii, fig. 3. *R. dendyi*, n. sp., from Lake Illawarra and Tuggerah Beach, N. S. Wales; WHITELEGGE (64) p. 67, pl. x, fig. 1. *R. mollis* Lambe, and *R. rufescens* Lambe; WHITEAVES (63) p. 15. *R. simulans* (Johnst.) O. S., redescribed, includes *Isodictya dichotoma* Bwk., *I. ingalli* Bwk., *Halichondria condensata* Bwk., and perhaps *Chalinula renieroides* O. S.; TOPSENT (59) pp. 356 & 357.
- Rhaphinia rubra* (Lend.), described; WHITELEGGE (64) p. 77.

Sub-family SPONGILLINÆ.

- Carterius latitenta* Potts, pp. 3, 6, 12, pl. ii, figg. 18 & 19; *C. stephanowi* (Dyb.), pp. 2, 3, 5, 6, 13, pl. i, fig. 14; *C. tenosperma* Potts, pp. 3, 6, 13 & 14, pl. ii, fig. 20; and *C. tubisperma* Potts, pp. 3, 6, 13, 14, pl. i, figg. 16 & 17; description of spicules [in Bohemian]: PETR (44).
- Ephydatia anonyma* Crtr., remarks on [in Bohemian], p. 3; *E. baileyi* Bwk., pp. 3, 6 & 7 and *E. bohemicum* Petr., description of spicules [in Bohemian], pp. 2, 3, 5, 6 & 7, 24, 27; *E. crateriformis* Potts, remarks on [in Bohemian], p. 29: PETR (44). *E. fluviatilis* Auct., gemmule and skeletal elements figured and the species diagnosed; KÜKENTHAL (34) p. 41, fig. 33: notes on the spiculation; WELTNER (62) pp. 191 & 192, pl. vi, figg. 27-43, pl. vii, figg. 44-59: FRIC & VÁVRA (23) pp. 40, 70, described, pp. 87-89, fig. 39: LEVANDER (36) pp. 58 & 59. *E. mülleri* Liebk.; FRIC & VÁVRA (23) p. 70, described, p. 89, fig. 41: gemmule and skeletal elements figured and the species diagnosed; KÜKENTHAL (34) pp. 41 & 42, fig. 33: LEVANDER (36), pp. 59 & 60: remarks on [in Bohemian]; PETR (44) pp. 29 & 30. *E. olchonensis*, n. sp., from Olchon Island, Lake Baikal, 10-12 meters; KOROTNEFF (33) p. 307. *E. plumosa* Crtr., description of spicules [in Bohemian]; PETR (44) pp. 3, 5, 19, 22, 26, pl. ii, figg. 29 & 30.
- Heteromeyenia argyrosperma* Potts, remarks on, p. 9; *H. everetti* (Mills), pp. 3, 5, 16, 24, 26, pl. ii, figg. 24 & 25; *H. insignis* Welt., pp. 3, 6, 9; *H. longistylis* Mills, pp. 3, 6, 9; *H. novæ-terre* (Potts), pp. 3, 5, 16 & 17, 22, 24-26, pl. ii, figg. 27 & 28; *H. radiospiculata* Mills, pp. 3, 5, 19, 20, 22; and *H. repens* Potts, pp. 3, 6, 9, 27, pl. ii, fig. 15; description of spicules [in Bohemian]: PETR (44).
- Lubomiraskia* Dyb., remarks on [in Bohemian]; PETR (44) p. 29. *L. bacillifera* Dyb., remarks on [in Bohemian]; PETR (44) p. 4: KOROTNEFF (33) p. 306. *L. baicalensis* Dyb., remarks on [in Bohemian]; PETR (44) p. 4: KOROTNEFF (33) p. 306. *L. fusifera* Swck.; KOROTNEFF (33) p. 306. *L. intermedia* Dyb.; KOROTNEFF (33) p. 306: remarks on [in Bohemian]; PETR (44) p. 4. *L. papyracea* Dyb., remarks on [in Bohemian]; PETR (44) p. 4.
- Pachydictyum*, n. g. [non Ulrich 1882], of Spongillinae, for type *P. globosum*, n. sp., from the eastern shore of Lake Posso, Celebes, in shallow water; WELTNER (62) pp. 188-196, pl. vi, figg. 1-4a, 6-26.
- Parmula batesi* (Bwk.), pp. 3, 6, 11, 21, 25, pl. i, figg. 10-13; *P. browni* (Bwk.), pp. 3, 6, 11; and *P. cristata* Welt., pp. 3, 6, 12; description of spicules [in Bohemian]: PETR (44).

- Potamolepis* Marsh, remarks on [in Bohemian]; PETR (44) p. 2
barroisi Tops., notes on its skeletal anatomy as compared
Pachydictyum globosum, n. g. n. sp.; WELTNER (62) pp. 195 &
 pl. vi, fig. 5.
- Spongilla* seu *Euspongilla*; *S. alba* Crtr., pp. 3, 6, 7, 23, 27, pl. i
 3-6; *S. bohmi* Hilg., pp. 3, 5, 15, 23, pl. ii, fig. 26; and *S. bomba*
 Crtr., pp. 3, 6-8, 27; description of spicules [in Bohemian]: PETR
S. cerebellata Bwk., p. 7; *S. cinerea* Crtr., p. 29, and *S. fragilis*
 p. 29; remarks on [in Bohemian]: PETR (44). *S. fragilis*
 skeletal framework figured and the species diagnosed; KÜKENTHA
 p. 40, fig. 32: gemmule and skeletal elements, ib. p. 41, fig. 33:
 & VÁVRA (23) p. 70, described, p. 86, fig. 38: LEVANDER (36),
S. igloviformis Potts, remarks on [in Bohemian]; PETR (44)
E. lacustris auct., description of spicules [in Bohemian]; PETR
 pp. 2, 3, 6, 7, 23 & 30, pl. i, figg. 1 & 2: gemmule and skeletal ele
 figured and the species diagnosed; KÜKENTHAL (34) p. 41, fig
 FRIČ & VÁVRA (23) pp. 68, 70, 73, described, p. 86, fig. 37: LEVA
 (36) pp. 57 & 58. *E. lacustris* var. *lieberkühni* Noll.; LEVAND
 p. 58. *S. loricata* Welt., description of spicules [in Bohemian];
 (44) pp. 3, 6, 15, 16 & 23. *S. microgemmata*, n. sp. (not descr
 from Lake Baikal; KOROTNEFF (33) p. 307. *S. navicella* Crtr.,
S. nitens Crtr., p. 29; and *S. permixta* Welt. p. 3; remarks c
 Bohemian]: PETR (44). *S. (?) sarasinorum*, n. sp., from the sh
 the island Loëha, Lake Torvuti, Celebes, pp. 196-198, pl. vii, fig
 66; *S. (?) vasta*, n. sp., from the shore of the island Loëha,
 Torvuti, Celebes, pp. 198-201, pl. vii, figg. 67-70: WELTNER (62)
Trochospongilla erinaceus; FRIČ & VÁVRA (23) p. 70, described,
 fig. 40. *T. horrida* Welt., gemmule and skeletal elements figure
 the species diagnosed; KÜKENTHAL (34) p. 41, fig. 33.
- Tubella pottsi* Welt., pp. 3, 6, 9; *T. recurvata* (Bwk.), pp. 3, 19, 27,
 figg. 22 & 23; *T. reticulata* (Bwk.), pp. 3, 6, 9, 10, 21 & 27, pl. i, 1
 & 9; and *T. spinata* Crtr., pp. 3, 6, 10, pl. i, fig. 7; descripti
 spicules [in Bohemian]: PETR (44). *T. thurnii* Traxler, remar
 [in Bohemian]; PETR (44) p. 3.
- Uruguaya corallioides* Bwk., remarks on, pp. 4, 23; *U. macandrewi* F
 pp. 3, 6, 14, 27; and *U. repens* Hinde, pp. 3, 6, 14, 21 & 27, pl. ii, fi
 description of spicules [in Bohemian]: PETR (44).

Sub-family GELLIODINÆ.

- Chondropsis kirkii* (Crtr.), synonyms *Sigmatella australis* Lend., a
corticata Lend.; WHITELEGGE (64) p. 77.
- Gelliodes benedeni*, n. sp., from Antarctic; TOPSENT (56) p. 2: full de
 tion; TOPSENT (60) p. 16, pl. ii, fig. 3, pl. iii, fig. 5. *G. cavi*
 Tops. was described from broken tubes of *Oceanapia robusta*;
 SENT (60) p. 16 footnote.
- Sigmatella australis* Lend., and *S. corticata* Lend., vide *Chondropsis*.

Sub-family PHLÆODICTYINÆ.

- Oceanapia robusta* Bwk., includes *Gelliodes cavicornis* Tops.; TOPSEN
 p. 16 footnote.

Family PÆCILOSCLERIDÆ.

Sub-family ESPERELLINÆ.

- Amphilectus annectens* R. & D., *A. pilosus* R. & D., and *A. tibialij*
 belong to the genus *Lissodendoryx*; TOPSENT (60) p. 20.

- Artemisina suberitoides* Voss.; WHITEAVES (63) p. 17.
- Asbestopluma* Norm., a subgenus of *Cladorhiza*, diagnosed with descriptions of the six species, *A. cupressiformis* (Crtr.) *bihamatifera* (Crtr.) *pennatula* (O. S.) *biserialis* R. & D., *nordenskiöldii* (Frist.) and *belgicae* Tops.; TOPSENT (60) pp. 23-28.
- Batzella inops* Tops.; TOPSENT (59) p. 356.
- Cladorhiza abyssicola* M. Sars; WHITEAVES (63) p. 17. *C. (Asbestopluma) belgicae*, n. sp., from Antarctic; TOPSENT (56) pp. 3 & 4: full description; TOPSENT (60) pp. 23-28 and p. 6, pl. i, fig. 4, pl. iii, fig. 8. *C. grandis* Verrill and *C. nordenskiöldii* Frist.; WHITEAVES (63) p. 17. *C. nordenskiöldii* Frist., and *C. pennatula* O. S., vide *Asbestopluma*.
- Desmacella peachii* (Bwk.), var. *groenlandica* Frist.; WHITEAVES (63) p. 17.
- Desmacidon dendyi*, n. sp., from Port Stephens, N.S.W.; WHITELEGGE (64) pp. 78 & 79, pl. x, fig. 9. *D. (Homæodictyus) palmata* Johnst.; WHITEAVES (63) p. 17. *D. setifer*, n. sp., from Antarctic; TOPSENT (56) pp. 2 & 3: full description; TOPSENT (60) p. 17 and p. 7, pl. i, fig. 3, pl. iii, fig. 6.
- Esperia* seu *Esperella*; *E. biserialis* R. & D., *E. cupressiformis* Crtr., and var. *bihamatifera* Crtr., vide *Asbestopluma*. *E. lingua* (Bwk.) and *E. modesta* Lambe; WHITEAVES (63) p. 16.
- Pseudohalichondria fibrosa*, n. sp., from Lake Illawarra, N. S. W.; WHITELEGGE (64) pp. 78 & 117, pl. x, fig. 8.
- Stylotella columella* (Bwk.) Tops.; TOPSENT (59) p. 356.

Sub-family DENDORYCINÆ.

- Dendoryx incrustans* (Johnst.) Gray, includes *Myxilla rosacea* (Liebk.) O. S.; TOPSENT (59) p. 353. *D. incrustans* var. *australis*, n. var., from Antarctic; TOPSENT (56) p. 3: full description; TOPSENT (60) pp. 17 & 18, pl. iii, fig. 11.
- Hastatus fragilis* Frist. is a *Lissodendoryx*; TOPSENT (60) p. 20.
- Iophon abnormalis* R. & D., and *I. chelifer*, R. & S., their relations to *I. radiatus*; TOPSENT (60) pp. 22 & 23 and p. 6. *I. chelifer* R. & D.; WHITEAVES (63) p. 17. *I. radiatus*, n. sp., from Antarctic, a "provisional species"; TOPSENT (56) p. 3: full description; TOPSENT (60) pp. 21-23 and p. 6, pl. iii, fig. 13.
- Leptonia baculifera*, n. sp., from La Calle, Coast of Algeria, pp. 354 & 355; *L. dujardini* (Bwk.) Tops., p. 353; *L. luciensis* Tops., redescribed, includes *L. exilis* Tops., pp. 353 & 354: TOPSENT (59).
- Lissodendoryx* Tops., characters and extent of the genus; TOPSENT (60) pp. 19 & 20: vide *Myxilla isodictyalis* (Crtr.). *L. spongiosa* (R. & D.) Topsent, var. *astigmata*, n. var., from Antarctic; TOPSENT (56) p. 3: full description; TOPSENT (60) pp. 17 & 18 and pp. 5 & 6.
- Myxilla banyulensis* Tops.; TOPSENT (59) p. 351. *M. incrustans* Johnst.; WHITEAVES (63) p. 18. *M. isodictyalis* (Crtr.), described; "would fall into the genus *Lissodendoryx* Tops."; WHITELEGGE (64) pp. 79 & 80. *M. lacunosa* Lambe, a synonym of *Lissodendoryx fragilis* (Frist.); TOPSENT (60) p. 20. *M. mollis* R. & D., *M. cribrigera* R. & D., *M. spongiosa* R. & D., and *M. hastata* R. & D., belong to the genus *Lissodendoryx*; TOPSENT (60) p. 20. *M. rosacea* (Liebk.) O. S., vide *Dendoryx incrustans*.
- Yvesia rosea* Tops., spiculation compared with *Y. elegans* Tops.; TOPSENT (59) pp. 355 & 356.

Sub-family ECTYONINÆ.

- Aulena gigantea*, var. *micropora* Lend. [placed under *Keratosa*]; WHITELEGGE 64; pp. 93 & 118.
- Clathria arborea* (Lend.), type specimen redescribed; WHITELEGGE pp. 65, 88 & 89, pl. xi, figg. 15 & 15a: specimen from B. Museum described (vide *Thalassodendron reticulata*); WHITELEGGE 65, p. 212. *C. australiensis* (Crtr.), described; SYDNEY *Clathria posima lobosa* Lend. and *Thorecta ramsayi* Lend.; WHITELEGGE 64 pp. 66, 84 & 85, pl. xi, fig. 12. *C. australis* Lend., vide sub *Plumohalichondria*. *C. delicata* Lambe; WHITEAVES (63) p. 18. *C. n. sp.* from Tuggerah Beach, N. S. W.; WHITELEGGE (64) pp. 8 & 117, pl. xi, fig. 11. *C. macropora* Lend., type examined, proves to be a synonym of *C. (Plumohalichondria) australis*, q. v.; WHITELEGGE 64 pp. 91 & 65: note on British Museum type; WHITELEGGE p. 212. *C. rubens* (Lend.), described, pp. 85-88, pl. xi, fig. 1; *tenuispora*, n. sp., from Lake Illawarra, N. S. W., pp. 82 & 83, fig. 10; *C. typica* Crtr., described, synonyms *Echinonema anchor* Crtr., *E. abelliformis* Crtr., *E. pectiniformis* Crtr. and *Phacelabrum* var. *australis* Crtr., pp. 65, 80-82 & 117; WHITELEGGE 64.
- Clathrioporella lobosa* Lend., the type is a specimen of *Clathria australis* (Crtr.); WHITELEGGE (64) p. 85.
- Echinoclathria elegans* (Lend.), described; WHITELEGGE (64) p. 91. *intermedia*, NOM. NOV., for the type of *Thalassodendron rim* Lend., in the Australian Museum, described under this name; WHITELEGGE 64 pp. 87 & 88; WHITELEGGE 65, p. 214. *E. minor* Lend., type specimen redescribed; WHITELEGGE (64) pp. 65, 117.
- Echinonema anchoratum* Crtr., var. *ramosa* Lend., *densa* Lend., *lamellosa* Lend., descriptions of types corrected; WHITELEGGE pp. 65, 81 & 82; vide etiam *Clathria typica*. *E. larvis* Lend., examined, proves to be a synonym of *Clathria (Plumohalichondria) australis*, q. v.; WHITELEGGE (64) pp. 91, 92 & 65: note on B. Museum type; WHITELEGGE 65 p. 212. *E. rubra* Lend., in B. Museum type; WHITELEGGE 65 p. 212. *Hymenysphaera* Tops., pp. 351 & 352; *H. viridis* Tops., redescribed, p. 352: TOPSENT 59.
- Plectis arborea* Lend., vide sub *Clathria*. *P. elegans* Lend., ad *micropora* Lend., vide sub *Echinoclathria*.
- Plumohalichondria australis* Lend., type specimen redescribed; SYDNEY *Clathria macropora* Lend. and *Echinonema larvis* Lend.; WHITELEGGE 64 pp. 90-92 & 65, pl. xi, figg. 14, 14a & b.
- Rhipidopeltis aliter* R. & D., var. *antabroris*, n. var., from C. of Asturias, Bay of Biscay, 200-400 meters; ORUETA (42) pp. 333, pls. iii & iv.
- Spongiopora palmarum* O. S. Tops.; TOPSENT 59) p. 352.
- Thalassodendron brevispina* Lend., *T. paucispina* Lend., *T. rubens* Lend., *T. rubens* var. *dura* Lend., *T. rubens* var. *lamellosa* Lend., specimens redescribed; probably all the above forms represent variable species. *Clathria rubens*, q. v.; *T. typica* Lend. and *T. rimosa* Lend., are distinct; WHITELEGGE 64 pp. 65 & 86-88. *T. retusa* Lend., the British Museum type was wrongly described, and specimen of *Clathria arborea*, p. 212; *T. rimulalis* Lend., B. Museum type redescribed, proves to be identical with the type *Cornuculina multiformis* var. *dura* Lend. in the Australian Museum; the type of *T. rimulalis* in the Australian Museum to be *Echinoclathria intermedia*, n. sp., pp. 212, 214 & 215; WHITELEGGE 65.

Family AXINELLIDÆ.

- Acanthella acuta* O. S., p. 349; *A. (?) obtusa* O. S. redescribed, pp. 350 & 351: TOPSENT (59).
Axinella aurantiaca Lend., described; WHITELEGGE (64) pp. 92, 93 & 65.
A. cannabina (Esper.) O. S., redescribed, p. 349; *A. cinnamomea* O. S., p. 348; *A. polypoides* O. S., p. 348; *A. verrucosa* (Esper.) O. S., redescribed, pp. 348 & 349: TOPSENT (59).
Ciocalyptra compressa (Crtr.), described; WHITELEGGE (64) p. 93, pl. xi, fig. 16.
Halicnemis patera Bwk.; TOPSENT (59) p. 351.
 "Hymeniacidon" *angulata* Bwk., vide *Cliona viridis*.
Phakellia ventilabrum (Johnst.); KINGSLEY (31) p. 161. *P. ventilabrum*, var. *australis* Crtr., vide *Clathria typica*; WHITEAVES (63) p. 18.
Raspailia atropurpurea Crtr., and *R. bifurcata* Ridl. [placed under *Ectyoninae*]; WHITELEGGE (64) p. 92. *R. gracillima* Tops.; TOPSENT (59) p. 351.

(c) INCERTÆ SEDIS.

- Heteroraphidites*, n. g. of Monaxonida, allied to certain Choristid genera, and thus a connecting link between Monaxonida and Tetractinellida, p. 17 & 18; + *H. spongiosus*, n. sp., from Quadrata-chalk of Oberg, pp. 18 & 21, pl. iii, fig. 5, pl. v, fig. 9: SCHRAMMEN (50).
 + *Trichospongia hystrix* Whiteaves; DOWLING (19) pp. 48f & 75f.

(iii) KERATOSA.

(a) DICTYOCERATINA.

Family SPONGIDÆ.

- Chalinopsilla arborea* var. *macropora* Lend., p. 94; *C. dichotoma* Lend., p. 94; *C. impar* (Crtr.), p. 93: WHITELEGGE (64).
Coscinoderma densa, for *Spongelia farlovii*, var. *densa* Hyatt, described, pp. 101-104, pl. xiii, figg. 24 & 24a; *C. lanuginosa* Crtr., compared with *C. densa*, p. 102: WHITELEGGE (64).
Euplacella mollissima Lend., description of type specimen corrected; WHITELEGGE (65) p. 215.
Euspongia discus D. & M. in commerce, p. 56; *E. illawarra*, n. sp., from coastal beaches, N. S. W., pp. 97 & 98, pl. xii, fig. 19, its economic value, p. 56; *E. irregularis* var. *areolata*, n. var., from Lake Illawarra, N. S. W., pp. 96 & 97, pl. xii, fig. 18, its economic value, p. 56: WHITELEGGE (64). *E. irregularis* var. *ramodigitata*, n. var., from La Calle, Coast of Algeria, resembles in external characters var. *jacksoniana* Lend.; TOPSENT (59) pp. 359-361, pl. xiii, fig. 3, pl. xiv, figg. 3 & 4. *E. irregularis* var. *silicata* Lend., described, pp. 95, 96 & 117, pl. xii, figg. 17 & 17a, its economic value, p. 56; WHITELEGGE (64). *E. officinalis* var. *adriatica* (O. S.) Lend.; TOPSENT (59) p. 359. *E. officinalis* var. *dura* Lend., described; WHITELEGGE (64) pp. 99 & 118, pl. xii, fig. 20: note on British Museum type; WHITELEGGE (65) p. 212. *E. officinalis* var. *exigua* F. E. S.; TOPSENT (59) p. 359. *E. officinalis* varr. *mollissima*, *adriatica*, *nitens*, *exigua*, *lamella*, and *arabica*, description and distribution; SEURAT (52) pp. 262-264. *E. officinalis*

- var. *sertalis* Lend., shown by examination of type specimen to be identical with *E. pikei* Hyatt; WHITELEGGE (65) p. 212. *E. canalis* var. *spinosa* Lend., described; WHITELEGGE (64) pp. 96 & 117. *E. officinalis* var. *rotunda* and *tubulifera*, in commerce; SEURAT (52) p. 265. *E. pikei* (Hyatt), described; WHITELEGGE (64) pp. 101 & 118, pl. xii, figg. 21 & 21a: includes *E. officinalis* var. *serotina* Lend.; WHITELEGGE (65) p. 212. *E. zimocca* O. S., description and distribution; SEURAT (52) p. 263.
- Hippospongia canaliculata* var. *gossypiana*, in commerce; SEURAT (52) pp. 265 & 267. *H. canaliculata* var. *elastica* Lend.; WHITELEGGE (64) p. 101. *H. equina* var. *elastica* Lend.; WHITELEGGE (64) pp. 101 & 118, pl. xii, fig. 22: description and distribution; SEURAT (52) pp. 264 & 267. *H. equina* var. *flabellum* and *meandriformis*, in commerce; SEURAT (52) pp. 265 & 266. *H. mollissima* Lend., p. 101, pl. xiii, fig. 23, its economic value, p. 56; WHITELEGGE (64).
- Hircinia atra*, n. sp., from Nassau Harbour, Bahamas, allied to *H. acuta* Hyatt; WHITFIELD (66) pp. 49 & 50, pl. v. *H. australis* Lend., p. 101, *H. calyculata* Lend., p. 116; WHITELEGGE (64). *H. purpurea*, n. sp., from Nassau Harbour, Bahamas, allied to *H. acuta* Hyatt; WHITFIELD (66) p. 49, pl. iv. *H. variabilis* Lend.; WHITELEGGE (64), p. 101. *H. variabilis* var. *dendroides* (O. S.) Lend.; TOPSENT (59) p. 358.
- Leiosella flabellum* Lend., p. 94; *L. laevis* Lend., p. 94; *L. nitida* Lend., described, p. 95; WHITELEGGE (64).
- Phyllospongia dendyi* var. *digitata* Lend., described; WHITELEGGE (64) p. 94.
- Stelospongia aspergillum* (O. S.) Lend., redescribed; TOPSENT (59) pp. 358 & 359, pl. xiii, figg. 5 & 6, pl. xiv, fig. 1. *S. australis* var. *conulata* Lend. and var. *fovea* Lend., vide *S. levis*. *S. canalis* Lend., described; WHITELEGGE (64) pp. 114 & 115, pl. xv, fig. 31: note on Br. Museum type; WHITELEGGE (65) p. 212. *S. cavernosa* (O. S.) Lend., vide TOPSENT (59) p. 358. *S. flabelliformis* Crtr., described, p. 115; *S. levis* Hyatt, described, synonym *S. australis* var. *conulata* Lend. and *S. laevis* Lend., pp. 113 & 114, pl. xv, figg. 32, 32a & b: WHITELEGGE (64).

Family SPONGELIDÆ.

- Spongelia farlovii* var. *densa* Hyatt, belongs to the genus *Cuscinella* q.v.; WHITELEGGE (64) p. 103. *S. palmata* Hyatt, vide *Thorecta rectilinea* var. *erecta* Hyatt, vide *Thorecta erecta*. *S. rectilinea tenuis* Hyatt, vide *Thorecta tenuis*.

Family APLYSINIDÆ.

- Thorecta byssoides* (Lam.), p. 112; *T. cacos* Lend., p. 104; *T. erecta* Lend., p. 104. *Spongelia rectilinea* var. *erecta* Hyatt, described; synonym *T. exemplum* var. *secunda* Lend. and var. *tertia* Lend., pp. 108, 109 & 110, pl. xiv, figg. 29, 29a-e: WHITELEGGE (64). *T. exemplum* var. *primitiva* Lend., vide *T. tenuis*. *T. exemplum* var. *secunda* Lend. and var. *tertia* Lend., vide *T. erecta*. *T. farlovii* Lend., distinct from *Spongelia farlovii* var. *densa* Hyatt, and probably identical with *Spongelia palmata* (Thorecta) Hyatt, pp. 103 & 112; *T. lobata* Lend., p. 104. *T. meandrina* Lend., described, pp. 104 & 105; *T. marginalis*, *T. exemplum* var. *marginalis* Lend., described, pp. 109-111, pl. xiv, figg. 30, 30a-d; *T. murrayi* (Polej.), p. 104; *T. palmata* (Hyatt) described; synonym *T. farlovii* Lend., pp. 112 & 113, pl. xiii, figg. 25a & 25b; *T. radiatus* [sic] Lend., described, p. 104, pl. xiii, fig. 25. *T. ramsayi* Lend., the type is a specimen of *Clathria australis*.

Crtr., p. 85; *T. tenuis*, for *Spongelia rectilinea* var. *tenuis* Hyatt, described; synonym *T. exemplum* var. *prima* Lend., pp. 105-108 & 111, pl. xiv, figg. 28 & 28a: WHITELEGGE (64).

(b) DENDROCERATINA.

Ianthella flabelliformis (Pallas); WHITELEGGE (64) p. 116.

(iv) MYXOSPONGIDA.

Family HALISARCIDÆ.

? *Halisarca* sp., Antarctic, described; TOPSENT (60) p. 45: TOPSENT (56) p. 8. *H. dujardini* Johnst. var. *magellanica*, n. var., from Straits of Magellan; TOPSENT (60) pp. 44 & 45, pl. i, fig. 2, pl. vi, figg. 11-14.

Family OSCARELLIDÆ.

Oscarella lobularis (O. S.), anatomy; KÜKENTHAL (34) pp. 43 & 44.

E. OCTACTINELLIDA.

(Vacant.)

F. HETERACTINELLIDA.

(Vacant.)

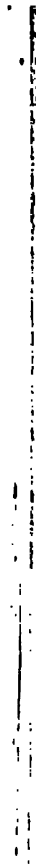
G. INCERTÆ SEDIS.

† *Ascodictyon radians* Nic. & Eth.; PEACH (43) pp. 220, 244 & 246.

† *Cylindrules* sp., from Cambrian; REDLICH (46) p. 8, pl. i, figg. 19 & 20, is a sponge according to COSSMANN in review.

† *Parkeria* sp.; JUKES-BROWNE & SCANES (30) p. 119.

Sphenodictya, n. g., for † *S. cornigera*, n. sp., from Coal-Measures, Marietta, Ohio; HERZER (27) pp. 30 & 31 and fig.



XVIII. PROTOZOA.

BY

ALBERT BROWN.

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INTRODUCTION.

THE growing importance of *Protozoa* from a medical standpoint receives abundant confirmation from the following record of the Literature for 1901, no less than 50 per cent. of the papers included being of importance in the study of the parasitic and pathological relations of the group. It becomes increasingly difficult for a Recorder to know where the line is to be drawn in dealing with papers of this class, since large numbers of memoirs dealing with medical questions now contain references to *Protozoa*, and yet some of them certainly cannot be included without going beyond the zoological scope of the Record.

The large number of papers marked with an * is unsatisfactory but is difficult to see how this can be avoided. Almost all these belong to the section of the subject under discussion.

The very rapid progress of our knowledge of the *Sporozoa* in the few years makes a general treatise on the subject desirable.

LAVERAN's paper on the classification of the *Hamacystozoa* should be helpful to students of this group. The numerous contributions by author and MESNIL and by LÉGER have added much to the literature of this section.

Among other publications of the year the first place must be given to general treatises on the *Protozoa*. The excellent volume by LANG (127) is no commendation here. The other work, CALKINS (26), calls for one or two remarks. It should help very greatly in interesting workers in the field. For a long time some treatise such as this has been badly needed. If the Author succeeds in inducing many amateur microscopists to take more scientific interest in their hobby he will have done a good work with his book. This remark must not be interpreted as suggesting that the book is entirely popular, but only as indicating one direction in which it will be useful. The book is up to date and well written and illustrated. But the strongest possible condemnation must be passed on one of the two illustrations in the book (p. 41, fig. 13 B, & p. 251, fig. 134 D), bearing inscription "n. sp." Footnotes to figures in a treatise are not the proper places for the publication of new species unless indeed the author desires them to escape the notice of the Zoological world. A useful review of the work (to which the Recorder is indebted for bringing this point to the notice) by PROF. MINCHIN will be found in *Nature* lxxv, p. 433.

Apart from the *Sporozoa* the progress made in the *Protozoa* is about the same as in previous years. As usual the Systematic Index of *Foraminifera* is larger than that of all the other groups combined. The first time for many years an entry appears under the *Proteomyxa*.

SAND has completed his Monograph on the *Tentaculifera* which has been appearing for some years in the *Ann. Soc. Belge Micr.* The work has now been issued separately and will be of help to those interested in this subdivision.

In conclusion it may be noted that the feature of this Record is undoubtedly the preponderance of Biological over purely Systematic papers. More Systematic and Faunistic papers on *Protozoa* are in need, but for the present interest seems to be concentrated on the branches of the subject dealing with relations the exact comprehension of which is of the utmost importance to Mankind.

I. TITLES.*

1. AFSTEIN, C. Plankton in Rügenschens Gewässern. *Wiss. Meeresuntersuch.* v, Heft ii, pp. 37-44.
2. ABGUTINSKY, P. Malaria studien. *Arch. mikr. Anat.* lix, pp. 315-344. pls. xviii-xxi.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

4. *BAUMGARTEN, P. VON & TANGL, F. Jahresbericht über die Fortschritte in der Lehre von den pathogenen Mikroorganismen, umfassend Bakterien, Pilze und Protozoen. Jahrg. xiv, 1898, 2 Hälften, 670 pp., Braunschweig, 1900.
Note in Centrbl. Bakter. xxix, p. 303.
5. BĂZNOȘANO POPOVICI, A. Contribution à l'étude des parasites endoglobulaires du sang des vertébrés. Bull. Soc. Bucarest x, pp. 329-335. Probable n. sp. described from blood of *Testudo ibera*. Abstract in J. R. Micr. Soc. 1901, p. 654.
6. *BIGNAMI, A. Hypotheses as to the life of the malarial parasite outside the human body. Lancet 1896, ii, pp. 1363-1367, 1441-1444. Translated by G. SANDISON BROOK.
7. *——. Le ipotesi sulla biologia dei parassiti malarici fuori dell' uomo. Policlinico iii, p. 320.
8. BILLET, A. Sur la présence constante d'un stade grégairiniforme dans le cycle évolutif de l'hématozoaire du paludisme. C.R. Ac. Sci. cxxxii, pp. 1433-1435, 7 text-figg. Abstract in J. R. Micr. Soc. 1901, p. 546.
9. ———. A propos de l'hématozoaire endoglobulaire pigmenté des *Trypanx*, *Hemamaba metchnikovi* (Simond). C.R. Soc. Biol. liii, pp. 257-259, figg. in text.
10. ———. Sur la présence constante de l'hématozoaire de Laveran dans le paludisme en Algérie (Constantine). T. c. pp. 1063 & 1064. Remarks by LAVERAN, pp. 1064 & 1065.
11. BLANCKENHORN, M. Neues zur Geologie und Paläontologie Aegyptens, II. Zeitschr. Deutsch. geol. Ges. lii, pp. 403-479, 2 pls., 1 fig.
12. BORBERT, A. Die tripyleen Radiolarien des Mittelmeeres. Mt. Stat. Neapel xiv, pp. 239-246, pl. xi. Abstract in J. R. Micr. Soc. 1901, p. 544.
13. BÖRNER, C. Untersuchungen über Hämosporidien I. Ein Beitrag zur Kenntnis des Genus *Hemogregarina* Danilewsky. Zeitschr. wiss. Zool. lxix, pp. 398-416, pl. xxviii. Abstract in J. R. Micr. Soc. 1901, p. 287.
14. BOSCH, F. J. Le parasite de la clavelée. C.R. Soc. Biol. liii (1901), pp. 9 & 10. [See also NOCARD (187).]
15. *——. Le cancer, maladie infectieuse à sporozoaire. Paris, 1898. Bosso, G. [See PERRONCITO & Bosso (199).]
16. *BOUTAN, L. Zoologie descriptive. Anatomie-histologie et dissection des formes typiques d'invertébrés. Paris, 8vo, 2 vols., 622 & 624 pp., 608 figg. Rhizopodes par LOUIS LÉGER : Ciliés par FABRE-DOMERGUE : Sporozoaires par LOUIS LÉGER : in Vol. I.
17. *BOWEN, —. Impetigo clinically and bacteriologically. Protozoic dermatitis. Boston med. and surg. J. 1901, No. 8. See Centrbl. Bakter. xxx, pp. 310 & 311. BRANDT, K. [See RHUMBLER, L. (210).]
18. BRAULT, J. Examen négatif du sang périphérique dans un certain nombre de cas de paludisme avéré (Algérie). C.R. Soc. Biol. liii, pp. 935-937. Remark by LAVERAN, p. 937.

19. BRAUNDET, L. Lésions de coccidiose expérimentale. *Rapports à la carcinose*. C.R. Soc. Biol. liii, pp. 1011-1013.
20. BRUCE, DAVID. Note on the discovery of a new *Trypanosoma*. P. Soc. London lxi, p. 496.
21. BRUNETTI, E. Mosquitoes and malaria. *Sci. Gossip* (n. s.) viii, pp. 1-2.
22. BRUNNTHALER, J. Die coloniebildenden Dinobryon-Arten. (S. genus *Eudinobryon* Lauterborn.) *Verh. Ges. Wien* li, 1901, pp. 230-236, 5 figg. in text.
23. —. Nachtrag zu meiner Arbeit: Die coloniebildenden Dinobryon-Arten. (Subgenus *Eudinobryon* Lauterborn.) *T. c.* pp. 763-766.
24. BRYAN, G. H. Experiences in floating *Foraminifera*. *Sci. Gossip* (n. s.) vii, pp. 296 & 297.
25. BURCHARDT, E. Beiträge zur Kenntnis des *Amphioxus lanceola* nebst einem ausführlichen Verzeichnis der bisher über *Amphioxus* veröffentlichten Arbeiten. *Jena. Zeitschr.* xxxiv, pp. 719-832, 9 pls.
26. CALKINS, G. N. The *Protozoa* (Columbia University Biological Series vi). London & New York, 1901, pp. xvi and 347, 153 figg. in 2 vols. 8vo.
Very good general account of the *Protozoa*.
27. —. Some *Protozoa* of especial interest from Van Cortlandt Park, New York. *Amer. Natural.* xxxv, pp. 645-658, 4 figg. in text.
28. CAULLERY, F. & MESNIL, M. Le parasitisme intracellulaire et la multiplication asexuée des Grégarines. *C.R. Ac. Sci.* cxxxii, pp. 222-223.
Abstract in *J. R. Micr. Soc.* 1901, p. 286.
29. — & —. Le parasitisme intracellulaire et la multiplication asexuée des grégarines. *C.R. Soc. Biol.* liii, pp. 84-87.
Abstract in *Centrbl. Bakter.* xxx, pp. 85 & 86.
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- +*Dendrophrya discreta*, Inoceramus 1 FRIEDBERG, Bull. Ac. Cracovie 19
- Dictyoconus*, n. g., def., DOUVILLÉ, Bul
- +*Discorbina allomorphinoides*, CHAPM fig. 8. +*D. globularis*, notes, M pl. i, fig. 22.
- D. globularis*, p. 327, pl. lxxii, fig. 2, *r loti*, p. 327, pl. lxxii, fig. 4, *biconce* FLINT, Rep. U. S. Mus. 1897, i.
- +*Ellipsoglandulina herigata*, Miocene. Pont. Lincei xvii, p. 247, pl. vi, fig. 53.
- Fronicularia alata*, p. 313, pl. lix, fi diagnosed, FLINT, Rep. U. S. Mus
- +*F. longissima*, p. 275, pl. vi, figg. 1-4 Miocene, Tiber Valley, SILVESTRI,
- +*Gaudryina conversa*, Inoceramus bec BOWSKI, Bull. Ac. Cracovie 1901, |
- G. pupoides*, p. 287, pl. xxxii, fig. 4, *rotundata*, p. 287, pl. xxxiii, fig. *rugosa*, p. 288, pl. xxxiii, fig. 3 *riphonella*, p. 288, pl. xxxiv, fig. 2 1897, i.
- +*Glandulina herigata*, p. 248, pl. vi, figg. 58 & 59, Miocene, Tiber V Lincei xvii.

- Globigerina bulloides*, p. 321, pl. lxix, fig. 2, *inflata*, p. 322, pl. lxix, fig. 3, *dubia*, p. 322, pl. lxix, fig. 4, *rubra*, p. 322, pl. lxix, fig. 5, *conglobata*, p. 322, pl. lxix, fig. 6, *sacculifera*, p. 322, pl. lxx, fig. 1, *digitata*, p. 323, pl. lxx, fig. 2, *aequilateralis*, p. 323, pl. lxx, fig. 3, diagnosed, FLINT, Rep. U. S. Mus. 1897, i. *G. inflata*, p. 19, figg. 19a-c, *eggeri*, nom. nov. for *dubia*, p. 19, figg. 20a-c, *aequilateralis*, p. 20, figg. 21-23, *bulloides*, p. 21, figg. 22-26, *bulloides*, var. *triloba*, p. 25, fig. 27, notes and descriptions of North Sea Plankton forms, RHUMBLER, Nordisches Plankton xiv.
- †*G.*, sp., SILVESTRI, Atti Acc. Pont. Lincei xvii, p. 290, pl. iv, figg. 105-107.
- Gypsina inherens*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 336, pl. lxxix, fig. 6.
- Haplophragmium agglutinans*, p. 275, pl. xix, fig. 2, *calcareum*, p. 275, pl. xix, fig. 1, *tenuimargo*, p. 275, pl. xix, fig. 3, *cassia*, p. 275, pl. xix, fig. 4, *foliaceum*, p. 276, pl. xix, fig. 6, *emaciatum*, p. 276, pl. xix, fig. 5, *latidorsatum*, p. 276, pl. xx, fig. 1, *scitulum*, p. 276, pl. xx, fig. 2, *canariense*, p. 277, pl. xx, fig. 3, *globigeriniforme*, p. 277, pl. xxi, fig. 1, diagnosed, FLINT, t. c.
- †*H.*, sp.?, Miocene, Tiber Valley, SILVESTRI, Atti Acc. Pont. Lincei xvii, p. 242, pl. vi, figg. 20 & 21.
- †*H. deflexum*, pl. viii, figg. 10 & 11, *horridum*, pl. viii, fig. 12, from the Inoceramus beds, Gorlic, names and figg. only, GRZYBOWSKI, Bull. Ac. Cracovie 1901, p. 223, n. spp.
- Haplostiche soldani*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 277, pl. xxi, fig. 3.
- †*H. constricta*, Upper Cretaceous, E. Galicia, SCHUBERT, Jahrb. geol. Reichsanst. l, p. 653, pl. xxvi, figg. 3a-c.
- †*H.*, sp. nov. aff. *dentalinoides* Reuss, E. Galicia, Upper Cretaceous, SCHUBERT, t. c., p. 654, pl. xxvi, figg. 4a & b, n. sp.
- Hastigerina pelagica*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 324, pl. lxx, fig. 4. *H. pelagica*, notes on North Sea Plankton form, RHUMBLER, Nordisches Plankton xiv, p. 29, fig. 31.
- †*Hippocrepina constricta*, SCHUBERT, Jahrb. geol. Reichsanst. l, p. 111, pl. iv, fig. 4, n. sp.
- Hormosina globulifera*, p. 280, pl. xxiv, fig. 4, *ovicula*, p. 280, pl. xxv, fig. 2, *carpenteri*, p. 280, pl. xxv, fig. 1, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.
- Hyperammina friabilis*, p. 269, pl. x, fig. 1, *elongata*, p. 270, pl. x, fig. 2, *ramosa*, p. 270, pl. xi, fig. 1, *vagans*, p. 270, pl. xi, fig. 2, diagnosed, FLINT, t. c.
- †*H. ramosissima*, Silurian, Mulde, Gotland, CHAPMAN, Ann. Nat. Hist. (7) viii, p. 142, pl. iii, fig. 1, n. sp.
- Jaculella acuta*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 269, pl. ix, fig. 4.
- †*Karrerina cretacea*, Upper Cretaceous, E. Galicia, SCHUBERT, Jahrb. geol. Reichsanst. l, p. 656, pl. xxvi, figg. 1a-1c, n. sp.
- Lagena elcockiana*, Malay Archipelago, p. 621, pl. xiv, figg. 5 & 6, *spumosa*, p. 9, pl. i, fig. 9, *chasteri*, p. 11, pl. i, fig. 11, *pannosa*, p. 11, pl. i, figg. 12-14, all from Malay Archipelago, MILLETT, J. R. Micr. Soc. 1901; *L. castanea*, near Aspinwall, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 307, pl. liv, fig. 3: n. spp.
- Lagena globosa*, p. 306, pl. liii, fig. 4, *longispina*, p. 306, pl. liii, fig. 2, *gracillima*, p. 306, pl. liii, fig. 3, *elongata*, p. 306, pl. liii, fig. 1, *distoma*, p. 306, pl. liii, fig. 5, *lavis*, p. 306, pl. liii, fig. 6, *hispida*, p. 307, pl. liii, fig. 8, *sulcata*, p. 307, pl. liii, fig. 7, *staphyllearia*, p. 307, pl. liv, fig. 1, *marginata*, p. 307, pl. liv, fig. 2, *orbignyana*, p. 308, pl. liv, fig. 4, *castrensis*, p. 308, pl. liv, fig. 5, diagnosed, FLINT, t. c. *L. ampull.*

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- Nodosaria rotundata*, p. 308, pl. liv, fig. 6, *laevigata*, p. 308, pl. liii, fig. 3, *radicula*, p. 309, pl. lv, fig. 1, *simplex*, p. 309, pl. lv, fig. 2, *pyrula*, p. 309, pl. lv, fig. 4, *farcimen*, p. 309, pl. lv, fig. 5, *filiformis*, p. 310, pl. lv, fig. 6, *consobrina* var. *emaciata*, p. 310, pl. lvi, fig. 1, *soluta*, p. 310, pl. lvi, fig. 3, *communis*, p. 310, pl. lvi, fig. 2, *raemeri*, p. 310, pl. lvi, fig. 5, *hispida*, p. 311, pl. lvii, fig. 1, var. *sublineata*, p. 311, pl. lvi, fig. 4, *mucronata*, p. 311, pl. lvii, fig. 2, *comata*, p. 311, pl. lvii, fig. 3, *obliqua*, p. 311, pl. lvii, fig. 4, *vertebralis*, p. 312, pl. lvii, fig. 5, *catenulata*, p. 312, pl. lviii, fig. 2, *costulata*, p. 312, pl. lviii, fig. 1, diagnosed, FLINT, t. c.
- +*N. radicula*, p. 247, pl. xxix, fig. 11, *pauperata*, p. 247, pl. xxix, fig. 12, *farcimen*, p. 248, pl. xxix, fig. 13, *soluta*, p. 248, pl. xxix, fig. 14, *longiscata*, p. 248, pl. xxix, fig. 15, *adolphina*, p. 249, pl. xxix, fig. 16, *obliqua*, p. 249, pl. xxix, fig. 17, CHAPMAN, P. Calif. Ac. ii. +*N. catomorpha*, notes, MORTON, P. Portland Soc. ii, p. 118, pl. i, fig. 6. +*N. ambigua*, p. 249, pl. vi, fig. 73, *genitzi*, p. 250, pl. vi, figg. 50, 54, 70, *subaequalis*, p. 250, pl. vi, fig. 72, *ovalis*, p. 250, pl. vi, fig. 71, *reitsi*?, p. 251, pl. vi, figg. 55, 57, *simplex*, p. 251, pl. vi, figg. 44-46, sp. ?, p. 251, pl. vi, fig. 78, *soluta*, p. 252, pl. vi, figg. 67 & 68, *pyrula*, p. 252, pl. vi, figg. 63 & 64, *ovicula*, p. 253, pl. vi, fig. 69, *longiscata*, p. 253, pl. vi, figg. 83 & 84, *nodosaria*, p. 253, pl. vi, fig. 65, sp. ?, p. 254, pl. vi, fig. 76, *scharbergana*, p. 254, pl. vi, figg. 60-62, sp. ?, p. 254, pl. vi, fig. 77, *farcimen*, p. 255, pl. vi, fig. 66, sp. ?, p. 255, pl. vi, fig. 79, sp. ?, p. 256, pl. vi, fig. 80, *raemeri*, p. 256, pl. vi, fig. 81, *mucronata*, p. 256, pl. vi, fig. 82, *perversa*, p. 259, pl. vi, fig. 91, *monilis*, p. 260, pl. vi, figg. 85-90, 92-94, *perversa*, p. 263, pl. vi, fig. 96, *raphanus*, p. 263, pl. vi, fig. 97, Miocene, Tiber Valley, SILVESTRI, Atti Acc. Pont. Lincei xvii.
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- +*N. communis*, p. 255, pl. xxx, fig. 13, *boueana*, p. 255, pl. xxx, figg. 14 & 14a, *umbilicatulata*, p. 256, pl. xxx, fig. 15, *pompilioides*, p. 256, pl. xxx, figg. 16 & 16a, CHAPMAN, P. Calif. Ac. ii. +*N. depressula*, pl. i, fig. 20, *stelligera*, p. 121, pl. i, fig. 18, *scapha*, pl. i, figg. 23 a & b, notes, MORTON, P. Portland Soc. ii, p. 121.
- Ophthalmidium inconstans*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 302, pl. xlvii, fig. 3.
- Orbulina adunca*, diagnosed, FLINT, t. c., p. 304, pl. i, fig. 1.
- Orbulina universa*, diagnosed, FLINT, t. c., p. 323, pl. lxix, fig. 1, notes on young and growing forms from N. Sea Plankton, RHUMBLER, Nordisches Plankton xiv, p. 27, figg. 28-30.
- +*Orbitoides apiculata*, p. 465, pls. viii, figg. 1, 4, 6, ix, figg. 1 & 4, *minor*, p. 466, pls. viii, figg. 2, 3, 5, ix, figg. 2 & 3, Dordonian, Maestricht, SCHLUMBERGER, Bull. Soc. geol. France (4) iv, n. spp.
- +*O. media*, notes, SCHLUMBERGER, t. c., p. 464, pl. vii, figg. 1-7.
- Orbitolites marginalis*, p. 304, pls. 1, fig. 2, li, fig. 1, *duplex*, p. 305, pl. li, figg. 2 & 3, *tenuissima*, p. 305, pl. lii, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.
- Pelosina variabilis*, diagnosed, FLINT, t. c., p. 266, pl. iv, fig. 1.
- +*P. apiculata*, SCHUBERT, Jahrb. geol. Reichsanst. I, p. 107, pl. iv, fig. 7, n. sp.
- Peneroplis pertusus*, p. 304, pls. xlviii, fig. 4, xlix, fig. 2, var. *discoideus* nov., Key West Harbour, p. 304, pl. xlix, fig. 1, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.

- Pilulina jeffreysii*, diagnosed, FLINT, t. c., p. 266, pl. v.
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+ *P. sororia*, Inoceramus Beds, Rzeszow, FRIEDBERG, Bull. Ac. Cra 1901, p. 461, pl. ii, fig. 10, n. sp.
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- †*R. orbicularis*, CHAPMAN, P. Calif. Ac. ii, p. 255, pl. xxx, fig. 12. †*R. soldanii* var. *gigantea* nov., Miocene, Tiber Valley, SILVESTRI, Atti Acc. Pont. Lincei xvii, p. 288, pl. vi, figg. 99–101.
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- S. spherica*, diagnosed, FLINT, t. c., p. 269, pl. ix, fig. 2.
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- Sphaerodina bulloides*, p. 325, pl. lxxi, fig. 1, *dehiscens*, p. 325, pl. lxxi, fig. 2, diagnosed, FLINT, Rep. U. S. Mus. 1897, i. *S. dehiscens*, notes on N. Sea Pelagic Forms, RHUMBLER, Nordisches Plankton xiv, p. 30, fig. 32.
- Spirillina vivipara*, p. 326, pl. lxxi, fig. 4, *limbata*, p. 326, pl. lxxi, fig. 5, *obconica*, p. 326, pl. lxxi, fig. 6, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.
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- †*Spiroloculina inclusa*, pl. viii, fig. 20, *simplex*, pl. viii, fig. 21, *fixistomata*, pl. viii, figg. 22–24, *occulta*, pl. viii, fig. 25, *complanata*, pl. viii, fig. 26, names and figg. only, Inoceramus Beds, Gorlic, GRZYBOWSKI, t. c., p. 222, n. spp.
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- Stacheia stomatifera*, Silurian, Mulde, Gotland, CHAPMAN, Ann. Nat. Hist. (7) vii, p. 143, pl. iii, fig. 2, n. sp.
- Storthosphera albida*, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, p. 266, pl. iv, fig. 2.
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- †*T. spherica*, SCHUBERT, Jahrb. geol. Reichsanst. 1, p. 109, pl. iv, figg. 6a & b, n. sp.
- Thurammina favosa*, p. 278, pl. xxi, fig. 2, *cariosa*, p. 278, pl. xxii, fig. 2, both from Gulf of Mexico, diagnosed, FLINT, Rep. U. S. Mus. 1897, i, n. spp.
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- T. proteus*, p. 281, pl. xxv, fig. 3, *lituiformis*, p. 281, pl. xxvi, fig. 1, *coronata*, p. 281, pl. xxvi, fig. 3, *conglobata*, p. 281, pl. xxvi, fig. 2, *ringens*, p. 281, pl. xxvii, fig. 1, *pauciloculata*, p. 282, pl. xxvii, fig. 2, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.
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- †*T. pygmaea*, CHAPMAN, P. Calif. Ac. ii, p. 254, pl. xxx, fig. 11.
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- †*U. tenuistriata*, CHAPMAN, P. Calif. Ac. ii, p. 252, pl. xxx, fig. 5.
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- †*Vaginulina badenensis*, p. 270, pl. vi, fig. 8, *badenensis*, p. 271, pl. vi. & 10, sp. l, p. 271, pl. vi, figg. 11-14, sp. l, p. 272, pl. vi, figg. 16 Miocene, Tiber Valley, SILVESTRI, t. c.
- †*V. striatissima*, SCHUBERT, Jahrb. geol. Reichsanst. l, p. 122, pl. ii 9a & b, n. sp.
- V. spinigera*, p. 314, pl. lx, fig. 3, *legumen*, p. 314, pl. lx, fig. 2, lü p. 314, pl. lxi, fig. 1, diagnosed, FLINT, Rep. U. S. Mus. 1897, i.
- Valvulina conica*, diagnosed, FLINT, t. c., p. 286, pl. xxxi, fig. 3.
- Verniculina pygmaea*, p. 285, pl. xxxi, fig. 1, *propinqua*, p. 285, pl. fig. 2, diagnosed, FLINT, t. c.
- Vertebrulina insignis*, diagnosed, FLINT, t. c., p. 302, pl. xlvii, fig. 4.
- †*Virgulina schreibersiana*, pl. i, fig. 9, *squamosa*, pl. i, fig. 10, MORTON, P. Portland Soc. ii, p. 115. *V. schreibersiana*, p. pl. xxxvii, fig. 6, *subsquamosa*, p. 291, pl. xxxvii, fig. 7, diag FLINT, Rep. U. S. Mus. 1897, i.
- Webbina larata*, diagnosed, FLINT, t. c., p. 279, pl. xxiv, fig. 3.

CORTICATA.

SPOROZOA.

Classification of *Hamacystozoa*:—Genus 1. *Hamamaba* Grassi & F Laveran sensu latiore [6 species]. Genus 2. *Piroplasma* l [4 species]. Genus 3. *Hamogregarina* Danilewsky [19 sp. LAVERAN (132).

Aggregata colomae, in *Pinnotheres pinum*, LÉGER, C.R. Ac. Sci. p. 1343, n. sp.

Branchiocystis amphioxii, descr., BURCKHARDT, Jena. Zeitschr. xxxiv, | pls. xix, figg. 9-11, xx, figg. 1-9.

Coccidium pylori, in Frog, GEBHARDT, Arch. path. Anat. cxlvii, p. *C. kermorganti*, in *Gariulus gangeticus*, p. 483, *legeri*, in *Cry granosus*, p. 485, SIMOND, C.R. Soc. Biol. liii : n. spp.

C. sp., in intestine of the Sheep, MOUSSU & MAROTEL, op. cit., p. 108.

Eosporidium murinum, provisional name for parasitic organism obs at Roscoff, SAND, Mem. Soc. Belge Micr. x, p. 116, n. sp.

Hamamaba metschnikovi, in the Tortoise, SIMOND, C.R. Soc. Bio p. 150, and p. 338 Ann. Inst. Pasteur xv, n. sp.

Hamogregarina crocodilorum, in *Crocodilus frontalis*, p. 407, pl. : figg. 19-22, *labbei*, in blood of *Clemmys elegans*, p. 407, pl. : figg. 1-14, *colubri*, in *Python reticulatus*, p. 410, pl. xxviii, figg. : BORNER, Zeitschr. wiss. Zool. lxi; *H. simondi*, in *Solva cul* p. 573, *bigemina*, in *Blennius pholis*, p. 575, descr. and figg., LAV & MESNIL, C.R. Ac. Sci. cxxxiii; *H. hankini*, in the Gavia, St C.R. Soc. Biol. liii, p. 183; *H. mesnili* in *Emysetectum*, p. 322, *las* in *Cryptopus granosus*, p. 327, *hankini* in *Gariulus gangeticus*, p pl. vii, *billeti* in *Trionyx stellatus*, p. 338, Tropical Asia, SU Ann. Inst. Pasteur xv, n. spp.

- Karyamæba renis*, descr., GIGLIO-TOS, Atti Acc. Torino xxxv.
Piroplasma equi, multiplication, appearance, relations, LAVERAN, C.R. Soc. Biol. liii, p. 385.
Plistophora mulleri, probably belongs to *Thelohania*, STEMPPELL, Zool. Anz. xxiv, p. 157.
P. mirandellæ, in *Alburnus mirandella*, VANEY & CONTE, C.R. Ac. Sci. cxxxiii, p. 644, n. sp.
Thelohania, see *Plistophora*, sup.

FLAGELLATA.

- Dimærium hyalinum*, parasitic on Rotifers, PRZESWYCKI, Bull. Ac. Cracovie 1901, p. 374, pls. ii & iii (xvii & xviii), n. sp.
Dinobryon sertularia, p. 297, var. *alpinum*, p. 297, fig. 1, *thyrsoidum*, pp. 298 & 763, *protuberans*, p. 298, *cylindricum*, p. 299, fig. 2, var. *palustre*, *divergens*, pp. 299 & 764, var. *pediforme*, *schauslandi*, p. 300, var. *angulatum*, p. 301, *stipitatum*, pp. 301 & 764, var. *americanum*, pp. 301 & 765, fig. 3, var. *lacustris*, p. 301, var. *bavaricum*, p. 302, fig. 4, var. *elongatum*, pp. 302 & 765, fig. 5, *sociale*, pp. 303 & 766, *pellucidum*, pp. 304 & 766, diagnoses, BRUNNTHALER, Verh. Ges. Wien li.
Herpetomonas, to be absorbed in *Trypanosoma*, LAVERAN & MESNIL, C.R. Soc. Biol. liii, p. 678. [See also *Trypanosoma*.]
Mastigamæba trichophora, LAUTERBORN, Zool. Anz. xxiv, p. 55, n. sp.
M. verrucosa, notes, CALKINS, Amer. Natural. xxxv, p. 651.
Tetramitus chilomonas, note & fig., CALKINS, Protozoa, p. 251, fig. 134 D, n. sp.
Trypanoplasma, n. g. for *borreli*, in *Scardinius erythrophthalmus*, descr., LAVERAN & MESNIL, C.R. Ac. Sci. cxxxiii, p. 673, n. sp.
Trypanosoma, extension of the genus to include *Herpetomonas*, p. 676, *rotatorium*, synonymy and notes on structure, p. 677, *balbianii*, belongs to *Bacteria* [near *Spirillum*], p. 884, LAVERAN & MESNIL, C.R. Soc. Biol. liii. *T. levisi*, morphology, etc., LAVERAN & MESNIL, Ann. Inst. Pasteur xv, p. 673, pls. xi & xii. *T. evansi*, transmitted by Horse Flies, *sanguinis*, relation to Surra, ROGERS, P. R. Soc. London lxviii, pp. 164 & 169. [See also under Lobosa, *Amæba rotatoria* p. 24.]
T. theileri, S. Africa, in blood of Cattle, BRUCE, P. R. Soc. London lxi; *T. remaki*, in the Pike, and var. *parva* and *magna*, descr. and fig., LAVERAN & MESNIL, C.R. Ac. Sci. cxxxiii, pp. 672 & 673 : n. spp.
Zachariasia, n. g. for *velifera*, Plön, VOIGT, Zool. Anz. xxiv, p. 192, n. sp.

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- Ceratium arcuatum*, p. 13, pl. vii, fig. 11, *contortum*, p. 14, pl. vii, fig. 10, *curvicorne*, p. 14, pl. vii, fig. 2, *flagelliferum*, p. 14, pl. vii, fig. 12, notes, CLEVE, Svenska Ak. Handl. xxxiv, No. 1. *C. macroceros*, notes, DADAY, in HORVÁTH's Zool. Ergebn. Zichy ii, p. 469, pl. xxviii, figg. 7-13.
C. arietinum, p. 13, pl. vii, fig. 3, *azoricum*, p. 13, pl. vii, figg. 6 & 7, *belone*, p. 13, pl. vii, fig. 13, *hyperboreum*, p. 14, pl. viii, fig. 14, *paradozides*, p. 15, pl. vii, fig. 14, *ranipes*, p. 15, pl. vii, fig. 1, *reflexum*, p. 15, pl. vii, figg. 8 & 9, *volans*, p. 15, pl. vii, fig. 4, *vultur*, p. 15, pl. vii, fig. 5, Atlantic Plankton, CLEVE, Svenska Ak. Handl. xxxiv, No. 1, n. spp.
Dinophyxis vanhoeffenii, notes, CLEVE, t. c., p. 16, pl. viii, fig. 3.
Glenodinium apiculatum, Eckberg See, Plön, p. 307, *lemmermanni*, Gr. Plöner See, p. 308, ZACHARIAS, Zool. Anz. xxiv, n. spp.

- Peridinium diabolus*, p. 16, pl. vii, figg. 19 & 20, *elegans*, p. 16, pl. figg. 15 & 16, *eriguum*, p. 17, pl. viii, fig. 5, Atlantic Plankton, CLU Svenska Ak. Handl. xxxiv, No. 1, n. spp.
P. oceanicum, pl. vii, figg. 17 & 18, *pallidum*, pl. vii, figg. 20-22, n. CLEVE, t. c., p. 17.
Phalocroma minutum, Atlantic Plankton, CLEVE, t. c., p. 18, pl. viii, 10 & 11, n. sp.
Steiniella punctata, Atlantic Plankton, CLEVE, t. c., p. 18, pl. viii, fig. n. sp.

RHYNCHOFLAGELLATA.

(Vacant.)

CILIATA.

- Actinobolus radians*, notes, CALKINS, Amer. Natural. xxxiv, p. 654.
Boveria, n. g. of *Heterotricha*, for *subcylindrica*, in respiratory tree *Holothuria californica*, Pacific Grove, Calif., descr., STEVENS, P. C. Ac. 3 iii, p. 20, pls. iv-vi, figg. 83 & 84, n. sp.
Chama limicola, LAUTERBORN, Zool. Anz. xxiv, p. 53, n. sp.
Cothurniopsis longipes, Plön, VOIGT, Zool. Anz. xv, p. 36, n. sp.
Dactyloclamys, n. g., for *pisciformis*, LAUTERBORN, Zool. Anz. xxiv, p. n. sp.
Dedinium cinctum, Plön, VOIGT, Zool. Anz. xiv, p. 36, n. sp.
Discomorphus dentata, LAUTERBORN, Zool. Anz. xxiv, p. 54, n. sp.
Glossatella tintinnabulum, var. *cotti*, notes, VOIGT, Zool. Anz. xxiv, p. 1.
Lacrymaria olar, notes, CALKINS, Amer. Natural. xxxv, p. 653.
Licinophorus macfarlandi, in respiratory tree of *Holothuria californica*, Pacific Grove, California, structure descr. and fig., STEVENS, P. C. Ac. (3) iii, p. 3, pls. i-iii, vi, figg. 68-82, n. sp.
Multicilius sp., notes, CALKINS, Amer. Natural. xxxv, p. 652.
Nematopoda, n. g. of *Peritricha*, def., for *cylindrica*, on Algae at Ros descr. and figg., SAND, Mem. Soc. Belge Micr. xxii, p. 85.
Pelamphora, n. g. of *Holotricha*, LAUTERBORN, Zool. Anz. xxiv, p. 52, n.

ACINETARIA.

For diagnoses of all spp. of *Acinetaria* see SAND (222).
Sphaerophrys sol., LAUTERBORN, Zool. Anz. xxiv, p. 54, n. sp.

INCERTAE SEDIS.

An unnamed sp. of Protozoa parasitic on Rotifers is described PRZESWYCKI, Bull. Ac. Cracovie 1901, p. 402, pl. ii (xviii), figg. 32-33.

CORRECTION OF PROTOZOA RECORD FOR 1898.

On p. 20 the spp. recorded under *Drepanidium* & *Hemogregarina* as *Flagellata* should have appeared under *Sporozoa*.

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